ICONES PLEUROTHALLIDINARUM
XXX

LEPANTHES OF JAMAICA

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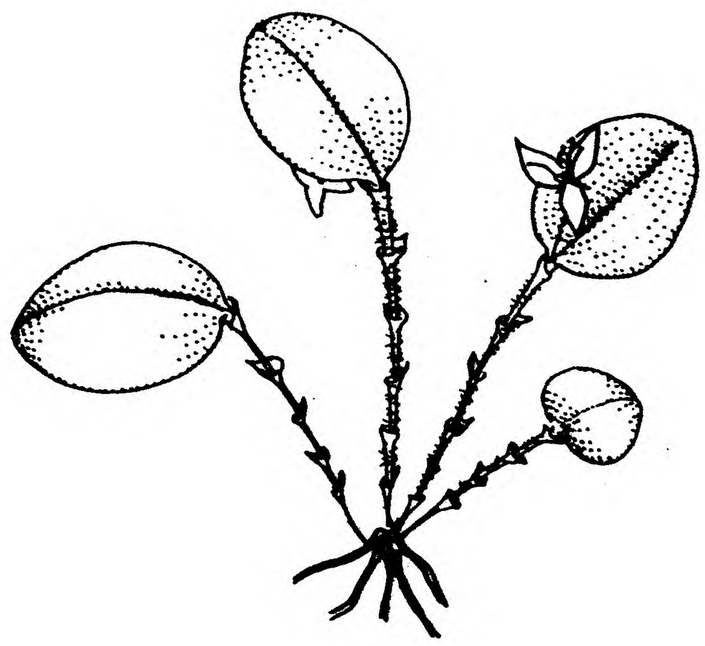
SYSTEMATICS OF STELIS

STELIS OF ECUADOR, PART FOUR

* * *

ADDENDA: Systenatics of *Masdevallia*, New Species of *Lepamthes* from Ecuador, and Miscellaneous New Combinations

Carlyle A. Luer



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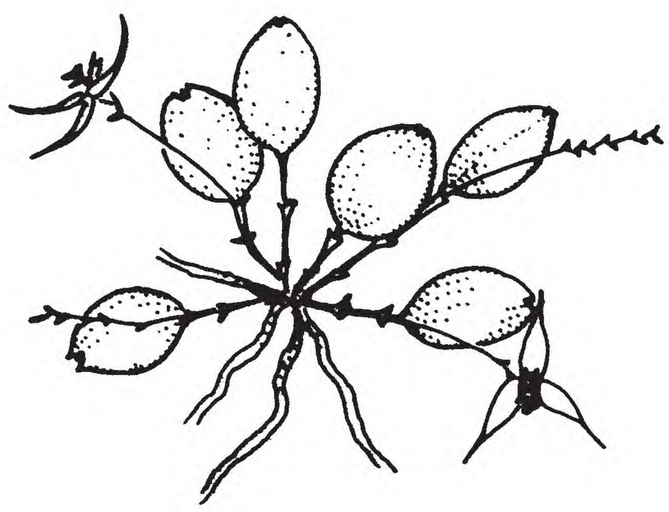

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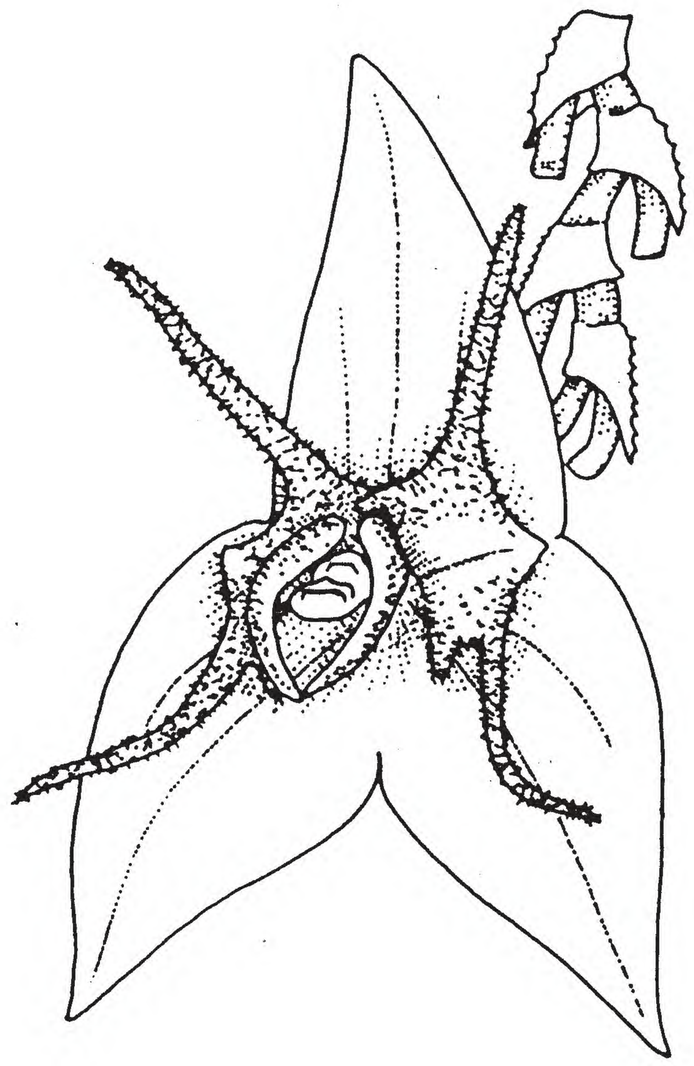


Lepanthes loddigesiana Rchb.f. identified as *Lepanthes tridentata* (Sw.) Sw. by Lindley.
Plate 1762, Edwards's Botanical Register 21, 1835.

THE GENUS *LEPANTHES* IN JAMAICA (ORCHIDACEAE)

Carlyle A. Luer
H. Phillips Jesup

ABSTRACT

Following a brief history of the genus *Lepanthes* Sw. in Jamaica, the 29 species of *Lepanthes* presently known to occur on that island are described and illustrated by black and white line drawings with a key to the species.

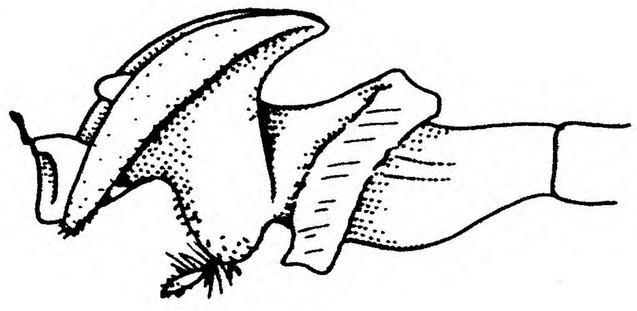
The genus *Lepanthes* Sw. is second only to *Epidendrum* L. in the number of species known from the island of Jamaica. The first four species of *Lepanthes* from the island were described in *Epidendrum* by Olaf Swartz in 1788 as *E. ovale, E. pulchellum, E. tridentatum.* and *E. cochlearifolium.* When he proposed the genus *Lepanthes* in 1799, he also proposed *L. concinna*, and transferred three of the four he had attributed to *Epidendrum* to the new genus: *L. pulchella, L. tridentata,* and *L. cochlearifolia*. Hooker added *L. sanguinea* to the genus in 1844; Reichenbach, *L. loddigesiana* in 1856; and Grisebach, *L. rotundata* in 1864.

The first account of the known species of *Lepanthes* from Jamaica was published by Fawcett and Rendle in 1904, at which time they added five more epithets, bringing the total to 12, their *L. concolor* being considered to be synonymous with *L. rotundata* Griseb. A key and partial line drawings of 10 of the species were included.

Not until 1910 was *Epidendrum ovale* transferred to *Lepanthes* by Fawcett and Rendle. In their first volume of the *Orchids of Jamaica*, also of 1910, Fawcett and Rendle treated 18 species attributed to *Lepanthes* including their recent transfer from *Epidendrum*, *L. ovalis*, and a few they had recently described. *Pleurothallis melanantha* Rchb.f. [=*Lepanthopsis melanantha* (Rchb.f.) Ames], the taxon previously unknown from the island, was represented by two names in *Lepanthes*: *L. brevipetala* and *L. harrisii*. Line drawings of floral parts of three *Lepanthes* and the two epithets for *Lepanthopsis melanantha* were included. Two undesignated subdivisions, presumed to be sections of *Lepanthes*, were proposed in the key to the species. These sections were based on the lobes of the lip, a condition now known to be nonspecific.

In 1924, Britton and Wilson designated *Lepanthes concinna* the lectotype of the genus. When *L. concinna* proved to be synonymous with *L. ovalis* (Sw.) Fawc. & Rendle, the latter became the recognized lectotype, *Epidendrum ovale* having been the first of the four published by Swartz (1799).

Henry Hespenheide published a revision of the genus for Jamaica in 1968. He treated 25 species without collection dates, and included a key to the species with line drawings for 12. The present revision includes 28 species, all of which are endemic. Only three have been recognized as new in the past forty years.



Lepanthes Sw., Nova Acta Regiae Soc. Sci. Upsal. 6: 85, 1799.

Ety.: From the Greek *lepos*, "bark," and *anthos*, "flower," because plants of this genus grow on bark of trees, as translated from the Latin provided by Swartz (p. 85, 1799).
Type: *Epidendrum ovale* Sw., Prodr. 125, 1788 [= *Lepanthes ovalis* (Sw.) Fawc. & Rendle].

Syn.: *Lepanthes* sect. *Macrocladae* Rchb.f., Xenia Orch. 1: 143, 1858.
Lectotype: *Lepanthes ovalis* (Sw.) Fawc. & Rendle, here designated.
Ety.: From the Greek *makrocladium*, "a long branch," referring to the length of the ramicauls as opposed to the short ramicauls of sect. *Brachycladium* Rchb.f.

Syn.: *Lepanthes* sect. *Diplocheilus* Fawc. & Rendle, Orchids of Jamaica 67, 1910.
Lectotype: *Lepanthes ovalis* (Sw.) Fawc. & Rendle, here designated.
Ety.: From the Greek *diplocheilos*, "a double lip," referring to the lip divided into blades.

Syn.: *Lepanthes* sect. *Haplocheilus* Fawc. & Rendle, Orchids of Jamaica 68, 1910.
Lectotype: *Lepanthes brevipetala* Fawc. & Rendle, here designated.
Ety.: From the Greek *haplocheilos*, "a single lip," referring to the undivided lip.

Syn.: *Lepanthes* sect. *Fawcelepanthes* Cogn., Orch. Antill. 434, 1910.
Lectotype: *Lepanthes brevipetala* Fawc. & Rendle, here designated.
Ety.: Named in honor of William Fawcett, investigator of the orchids of Jamaica.

Syn.: *Lepanthes* sect. *Rendlepanthes* Cogn., Orch. Antill. 435, 1910.
Lectotype: *Lepanthes ovalis* (Sw.) Fawc. & Rendle, here designated.
Ety.: Named in honor of Alfred Rendle, investigator of the orchids of Jamaica.

Plants perennial, very small to large, weak to robust, erect to pendent, epiphytic, lithophytic to terrestrial, the rhizome very short to elongate between aerial stems (ramicauls); roots few to many, slender to coarse or fleshy. Ramicauls ascending to erect, single to proliferating another ramicaul, slender to stout, non-pseudobulbous, usually longer than the leaf, unifoliate, enclosed by ***lepanthiform sheaths*** (a series of tubular, ribbed, imbricating sheaths with oblique, more or less dilated ostia, with the ribs and thickened margins of the ostia usually scabrous or ciliate), with the inflorescence arising with an annular ring (annulus) from near the apex (the leaf-stem abscission layer). **Leaf** erect in relation to the ramicaul, coriaceous to thinly coriaceous, smooth, ciliate or spiculate, rarely reticulated, often suffused with purple, ovate to narrowly ovate, elliptical to narrowly elliptical to linear or rarely terete, the apex acute, obtuse to rounded, shallowly notched with a mucro in the sinus, the base rounded, cuneate or narrowly cuneate into a short petiole. **Inflorescence** racemose, single or fasciculate, longer or shorter than the leaf, densely or distantly flowered, few- to many-flowered, usually successively flowered, borne by a slender peduncle either on top of the leaf, behind the leaf, or far beyond the leaf; floral bracts thin and tubular to infundibular, oblique, often ciliate or echinate; pedicels slender to stout, longer or shorter than the floral bract; ovary smooth, or spiculate, trivalvate with the ribs smooth, carinate or crested. Flowers variously colored; **sepals** conspicuous, usually membranous, smooth, ciliate, denticulate or pubescent, broad to narrow, obtuse to acute or acuminate, occasionally caudate, nearly free to deeply connate, 1- to 3-veined; **petals** membranous, transversely bilobed, occasionally with a marginal process or third lobe, glabrous to pubescent; **lip** variously trilobed, with the margins of the lateral lobes most often developed into *blades* that flank or overlie the column, the portion of the lateral lobe below the blade is the *connective*, the middle lobe is variously developed into a unique and extremely variable structure, the *appendix*, the central portion of the lip between the two connectives and from which the appendix arises is the *body*, the body connate to the base or undersurface of a footless column; **column** more or less terete with the apex clavate, the anther dorsal or apical, unhooded, the rostellum apical, the pollinia 2, yellow, pyriform, with a common viscidium, the stigma single-lobed or bilobed, apical, subapical, or ventral, the base of the column footless, continuous with the ovary.

Checklist of the species of Jamaica published in *Lepanthes*.

Names in **boldface** indicate an accepted species; names in *italics* indicate a synonym.

Lepanthes adamsii Hespenh.
Lepanthes arcuata Fawc. & Rendle [= **L. elliptica**].
Lepanthes bilabiata Fawc. & Rendle
Lepanthes brevipetala Fawc. & Rendle [= **Lepanthopsis melanantha** (Rchb.f.) Ames].
Lepanthes brownii Hespenh. [= **L. tubuliflora**].
Lepanthes byfieldii Hespenh.
Lepanthes cochlearifolia (Sw.) Sw.
Lepanthes concinna Sw. [= **L. ovalis**].
Lepanthes concolor Fawc. & Rendle [= **L. rotundata**].

Lepanthes convexa Hespenh.
Lepanthes crassifolia Rchb.f. [= **L. ovalis**].
Lepanthes divaricata Fawc. & Rendle
Lepanthes divaricata var. minor. [= **L. divaricata**].
Lepanthes elliptica Fawc. & Rendle
Lepanthes harrisii Fawc. & Rendle. [= **Lepanthopsis melanantha** (Rchb.f.) Ames].
Lepanthes hollymountensis Luer & H.P.Jesup
Lepanthes interiorubra Hespenh.
Lepanthes intermedia Hespenh. [= **L. obtusipetala**].
Lepanthes jesupii Luer
Lepanthes lanceolata Fawc. & Rendle
Lepanthes loddigesiana Rchb.f.
Lepanthes multiflora Adams & Hespenh.
Lepanthes obtusa Fawc. & Rendle
Lepanthes obtusipetala Fawc. & Rendle
Lepanthes ovalis (Sw.) Fawc. & Rendle
Lepanthes proctorii Garay & Hespenh.
Lepanthes pulchella (Sw.) Sw.
Lepanthes quadrata Fawc. & Rendle
Lepanthes rotundata Griseb.
Lepanthes sanguinea Hook.
Lepanthes simplex Hespenh.
Lepanthes tridentata sensu Lindl. [= **L. loddigesiana**].
Lepanthes tridentata (Sw.) Sw.
Lepanthes tubuliflora Hespenh.
Lepanthes unguicularis Hespenh.
Lepanthes vinacea Hespenh.
Lepanthes woodiana Fawc. & Rendle
Lepanthes wullschlaegelii Fawc. & Rendle

KEY TO THE SPECIES OF *LEPANTHES* OF JAMAICA

1 Inflorescence exceeding the leaf
 2 Raceme laxly flowered ..... *L. loddigesiana*
 2' Raceme subdense to congested
  3 Sepals caudate and ciliate..... *L. pulchella*
  3' Sepals neither caudate nor ciliate
   4 Petals transversely bilobed
    5 Petals with lobes sharply acute and ciliate..... *L. proctorii*
    5' Petals with apex of lobes rounded, eciliate..... *L. multiflora*
   4' Petals not transversely bilobed..... *L. tubuliflora*
1' Inflorescence shorter than the leaf
 6 Sepals minutely denticulate to ciliate
  7 Lip with elliptical blades and a pubescent, pedunculate appendix... *L. sanguinea*
  7' Lip not with elliptical blades and a pubescent, pedunculate appendix
   8 Sepals minutely denticulate; lip with rounded basal lobes..... *L. rotundata*
   8' Sepals coarsely ciliate; lip with narrow, elongate, basal lobes..... *L. quadrata*
 6' Sepals entire
  9 Lip entire

10 Lip triangular with incurved margins and acute apex.....*L. unguicularis*
10 Lip transversely oblong, entire.....*L. simplex*
9' Lip bilobed
11 Lip with lobes nearly free to the base
12 Lip with blades lunate, beside the column.....*L. vinacea*
12' Lip with blades cylindrical, curved along top of the column.....*L. tridentata*
11' Lip with blades supported by a connective
13 Lip with elliptical, ovate, or uncinate blades
14 Lip with blades elliptical or ovate
15 Petals with upper lobes distinctly larger or longer than the lower lobes
16 Petals with upper lobes broadly truncate, the lower lobes narrowly acute .....*L. adamsii*
16' Petals not with upper lobes quadrate-oblong, nor lower lobes narrowly acute
17 Petals with upper lobes suborbicular, twice larger than the lower lobes .....*L. lanceolata*
17' Petals with upper lobes subtriangular, twice to thrice longer than the lower lobes
18 Lip with blades 1.2 mm long; petals with upper lobe acute..... .....*L. wullschlaegelii*
18' Lip with blades 0.6 mm long; petals with upper lobe obtuse
19 Petals with lobes opposite, 180°, the upper lobe thrice longer... .....*L. interiorubra*
19' Petals with lobes diverging, 90°, the upper lobe ca. 1.5 longer... .....*L. hollymountensis*
15' Petals with upper lobes indistinctly larger or longer than the lower lobes
20 Petals with upper lobes subtriangular, narrower than the lower lobe... .....*L. convexa*
20' Petals with upper lobes subtruncate, slightly wider than the lower lobe
21 Sepals obtuse; lip with body broad; appendix proportionately large... .....*L. obtusa*
21' Sepals acute; lip with body narrow; appendix proportionately small... .....*L. obtusipetala*
14' Lip with apex of blades uncinate, acute
22 Petals with an elongated process on both lobes.....*L. cochlearifolia*
22' Petals not with elongated processes
23 Lateral sepals acute, diverging.....*L. divaricata*
23' Lateral sepals subacute or obtuse, incurved
24 Petals with lobes subquadrate; lip with lobes much longer than the column .....*L. elliptica*
24' Petals with lobes subtriangular; lip with lobes slightly longer than the column .....*L. jesupii*
13' Lip without distinct blades
25 Lip with lobes subtriangular-hastate with apices acuminate in apposition... .....*L. ovalis*
25' Lip not with lobes subtriangular-hastate with apices acuminate
26 Lip with blades developed with an appendix
27 Sepals 7 mm long; lip 1.2 mm long.....*L. byfieldii*
27' Sepals 1.5 mm long; lip 0.5 mm long.....*L. woodiana*
26' Lip subcordate, retuse, without an appendix .....*L. bilabiata*

Lepanthes adamsii Hespenh., Proc. Acad. Nat. Sci. Philadelphia 120: 19, 1968.

Ety.: Named in honor of Charles Dennis Adams who collected the type of this species.

Plant medium in size, epiphytic, caespitose; roots slender. Ramicauls erect, slender, 7-11 cm long, enclosed by 7-9 minutely ciliate, lepanthiform sheaths. **Leaf** erect, coriaceous, ovate to ovate-subcordate, acute, 42-58 mm long, 22-30 mm wide, the base contracted into a petiole 3-5 mm long. **Inflorescence** a congested, distichous, successively many-flowered raceme 20-51 mm long, borne by a filiform peduncle of unstated length; floral bracts shortly ciliate, infundibuliform, acute, 1.3-1.4 mm long; pedicels 1.9-2.1 mm long; ovary not noted; **sepals** with color not recorded, entire, ovate, acute, the dorsal sepal 3.2 mm long, 2 mm wide, connate to the lateral sepals for 0.75 mm, the lateral sepals oblique, 2.2 mm long, 1.5-1.6 mm wide, connate to each other for half to a third the length; **petals** transversely bilobed, upper lobe quadrate-oblong, 1.3 mm long, 0.5 mm wide, the lower lobe smaller, falcate-triangular, acute, acuminate. 1.2-1.3 mm long, 0.5 mm wide at the junction with the dorsal sepal; **lip** bilaminate, the blades dolabriform to elliptical with incurved, uncinate apex, 1 mm long, the connectives broadly cuneate, the body wide, connate to the base of the column, the obtuse sinus with a minute, deltoid, ciliate appendix; **column** slender, 1.1 mm long, the anther apical, the stigma ventral.

JAMAICA: **Surrey**: Portland, Fishbrook above Millbank, Rio Grande, alt. 750 ft., *C.D. Adams 11486* (Holotype: UCWI).

This species is known only from the type collection made at a lower altitude than the other species known on the island, that usually occur at altitudes well above 1,000 feet. The present description and illustration were made from those originally published. The species is characterized by a habit larger than average on the island with a congested raceme shorter than the typically ovate leaf. The sepals are ovate and acute. The petals are transversely bilobed with the upper lobe subquadrate and truncate, and the lower lobe acutely uncinate. The blades of the lip are elliptical with acute, incurved apices. The appendix is small and obtuse.

Lepanthes bilabiata Fawc. & Rendle, Trans. Linn. Soc. London, Bot. ser. 2, 7: 4, 1904.

Ety.: From the Latin *bilabiatus*, "bilabiate," referring to the concave dorsal (middle) sepal and the opposite lateral sepals in apposition that create a bilabiate flower.

Plant small, epiphytic, caespitose; roots slender. Ramicauls erect, slender, 25-32 mm long, enclosed by 5-7 microscopically ciliate, lepanthiform sheaths. **Leaf** erect, coriaceous, elliptical, subacute, 18-21 mm long, 8-9 mm wide, the base cuneate into a petiole 1 mm long. **Inflorescence** a congested, distichous, successively several-flowered raceme to 5 mm long, borne behind the leaf by a filiform peduncle 2-4 mm long; floral bracts 0.75-1 mm long; pedicels 0.5-0.75 mm long; ovary 0.8 mm long; **sepals** entire, ovate, acute, the dorsal sepal purple-black, deeply concave, 2.9 mm long, 2 mm wide unexpanded, connate to the lateral sepals for 0.5 mm, the lateral sepals yellow-white, oblique, slightly concave, 2.75 mm long, 1 mm wide, connate 1 mm; **petals** glandular-pubescent, transversely bilobed, 0.5 mm long, 2 mm wide, the upper lobe purple-black, oblong, obtuse, the lower lobe yellow-white, triangular, acute, slightly shorter than the upper sepal; **lip** yellow-white, glabrous, bilobed, subquadrangular, the lobes ovate with rounded ends, erect, encircling the column, 1 mm long, 1.8 mm wide expanded, connate to the base of the column, the anterior margin shallowly retuse, minutely ciliate; **column** 1 mm long, the anther dorsal, the stigma apical.

JAMAICA: **Surrey**: near Mabess River, alt. 3,000-4,000 ft., 22 Feb. 1900, *W. Harris s.n.* (Lectotype here designated: BM; Isolectotype: UCWI); Portland, ridge below Vinegar Hill, alt. 3,800 ft., *W. Harris 10095* (AMES, NY, UCWI); Uncommon Hill above Fruitful Vale, alt. 2,500 ft., *G.R. Proctor 8552* (IJ, AMES); Haycock Mt., Balcarres, alt. 2,750-3,000 ft., *G.R. Proctor 8093* (IJ, AMES); St. Thomas, Corn Puss Gap, alt. 2,000 ft., 27 May 1949, *G.B. Fairchild* (IJ); Woodcutter's Gap, alt. 4200 fr., 10 Oct. 1908, *W. Harris s.n.* (UCWI); Haycock Hill, 1969, collected by H. Brown, flowered in cultivation by H.P. Jesup, Nov. 1988, *C. Luer A12875* (MO).

In 1904, Fawcett and Rendle published an illustration of this uncommon species with their original description, and cited three collections. The first is designated the lectotype. *Lepanthes bilabiata* is apparently endemic in the Blue Mountains of the eastern part of the island. Hespenheide (1968) treated it as a synonym of *L. loddigesiana* Rchb.f.

Lepanthes bilabiata is characterized by a short, congested inflorescence, consid-

erably shorter than the small, elliptical leaf. The dorsal sepal is deeply concave while the acute lateral sepals are semiconnate. The upper lobe of the petals is oblong while the lower lobe is triangular. The lip is transversely ovate-bilobed with the rounded lobes encircling the column. The apex is retuse without forming an appendix. The purplish black color of the dorsal sepal and upper lobes of the petals are in stark contrast to the yellowish white of the lower half of the flower that includes the lateral sepals, lower lobes of the petals and the lip.

Lepanthes byfieldii Hespenh., Amer. Orchid Soc. Bull. 42(10): 871, 1973.

Ety.: Named in honor of John Byfield of the Forest Department of Jamaica, co-discoverer of this species.

Plant small to medium in size, epiphytic, caespitose; roots slender. Ramicauls erect, slender, 3-7 cm long, enclosed by 5-9 minutely ciliate, lepanthiform sheaths. **Leaf** erect, coriaceous, broadly elliptical, obtuse, 17-23 mm long, 9-14 mm wide, the base broadly cuneate into a petiole 1 mm long. **Inflorescence** a congested, distichous, successively several-flowered raceme to 10 mm long, borne on the dorsum of the leaf by a filiform peduncle 10-13 mm long; floral bracts 1.5 mm long; pedicels 0.5-1 mm long; ovary 1 mm long; **sepals** clear golden yellow, entire, slightly undulate, carinate, broadly ovate, obtuse, slightly acuminate, the dorsal sepal 6-7.5 mm long, 4.5-5 mm wide, connate to the lateral sepals for 1 mm, the lateral sepals oblique, 5.5-7 mm long, connate 3-3.5 mm, 5.5-6.5 mm wide together; **petals** yellow, suffused with red medially, transversely bilobed, cellular-glandular, 1 mm long, 3.5 mm wide, the lobes obliquely oblong, obtuse, the upper lobe slightly broader and longer; **lip** red, cellular-glandular, bilobed, subquadrangular, the lobes oblong with rounded ends, erect, embracing the column, 1.2 mm long, 2 mm wide expanded, connate to near the middle of the column, the anterior margin retuse with a small, membranous, triangular, ciliate appendix; **column** 2 mm long, the anther dorsal, the stigma ventral.

JAMAICA: **Surrey**: St. Thomas, John Crow Mtns, ridge above Bowden Pen, alt. 3,000-3,300 ft., 6 July 1971, *Marcia M. Kindlmann, Peter J. Kindlmann & John Byfield s.n.* (Holotype: US); flowered in cultivation by Phillips & Ann Jesup in Bristol, CT., Nov. 1988, *C. Luer 13777* (MO).

This species is known only from the type collection made at the very wet crest of the ridge in the John Crow Mountains. A division of the original collection was given to H.P. Jesup in 1971 who has successfully cultivated it in his extensive collection in Bristol, Connecticut.

Lepanthes byfieldii is distinguished by the congested, short-pedicellate raceme shorter than the broadly elliptical leaf; the relatively large, clear golden yellow shortly acuminate, slightly undulate sepals; transversely bilobed petals; and a transverse, bilobed lip with the oblong lobes erect and embracing the column.

Lepanthes cochlearifolia (Sw.) Sw., Nova Acta Regiae Soc. Sci. Upsal. 6: 86, 1799.

Bas.: *Epidendrum cochlearifolium* Sw., Prod. Veg. Ind. Occ. 126, 1799.

Ety.: From the Latin *cochlearifolius*, "with spoon-like leaves."

Plant small, epiphytic, caespitose; roots slender. Ramicauls erect to suberect, slender, 1.5-6 cm long, enclosed by 4-8 long-ciliate, lepanthiform sheaths. **Leaf** erect, coriaceous, occasionally suffused with purple beneath, broadly elliptical to suborbicular, convex, obtuse, 15-25 mm long, 10-18 mm wide, the base broadly cuneate into a petiole 1 mm long. **Inflorescence** a congested, distichous, successively several-flowered raceme to 5 mm long, borne behind the leaf by a filiform peduncle 3-6 mm long; floral bracts echinate, 1-1.25 mm long; pedicels 1.5-2 mm long; ovary 1.5 mm long; **sepals** purple, entire, ovate, acute, the dorsal sepal 4.5-5 mm long, 2.25-3 mm wide, connate to the lateral sepals for 1 mm, the lateral sepals oblique, 4.5-5 mm long, 2.25-3 mm wide, connate 1 mm; **petals** yellow-orange, minutely pubescent, transversely bilobed (four-lobed), 1 mm long, 5-6 mm wide, the lobes about equal in size and shape, each lobe with a narrowly linear process projecting upward or downward respectively, each lobe with an accessory lobule on the inner margin above the base; **lip** purple, minutely pubescent, bilaminate, the lobes narrowly falcate, acute, 2 mm long, the connectives cuneate from below the middle of the blades, the body narrow, connate to the base of the column, the sinus with a minute, oblong, ciliate appendix; **column** 1.5 mm long, the anther dorsal, the stigma apical.

JAMAICA: "Omnes in India occidental veget," *O. Swartz s.n.* (Holotype: BM; Isotypes: C, M).
Surrey: Portland, north of Hardwar Gap, alt. 3,600 ft., *M.R. Crosby, H.A. Hespenheide & W.R. Anderson 638* (DUKE); near Hardwar Gap, alt. 1050 m, 15 Nov. 1985, *C. & J. Luer, H.P. & A. Jesup 11499* (MO); slopes of John Crow Peak, above Mabess River, alt. 300 ft., 5 Sept. 1902, *W. Fawcett s.n.* (BM, K); Uncommon Hill above Fruitful Vale, alt. 2,250-2,500 ft., *G.R. Proctor 8551* (AMES, IJ, AMES); west of Ecclesdown, alt. 1,750 ft., *C.D. Adams 9117* (UCWI); Haycock Hill, collected by H. Brown, flowered in cultivation by H.P. Jesup in Bristol, CT., 26 Apr. 1987, *C. Luer A12845* (MO).

Infrequent in the humid forests of the Blue and John Crow Mountains of the eastern part of the island, *Lepanthes cochlearifolia* is characterized by long-pubescent lepanthiform sheaths; broadly elliptical leaves; a short, congested, distichous inflorescence; ovate, acute sepals; four-lobed petals consisting of two opposite, narrowly linear processes and two shorter processes on the inner margins near the base; and a bilaminate lip, with narrowly falcate blades and a small, oblong, ciliate appendix.

Lepanthes convexa Hespenh., Proc. Acad. Nat. Sci. Philadelphia 120: 15, 1968.

Ety.: From the Latin *convexus*, "convex," referring to the sepals.

Plant small, epiphytic, caespitose; roots slender. Ramicauls erect, slender, 4-6 cm long, enclosed by 6-7 microscopically scabrous, lepanthiform sheaths. **Leaf** erect, thickly coriaceous, elliptical, subacute, 20-29 mm long, 8-12 mm wide, the base cuneate into a petiole 1 mm long. **Inflorescence** a congested, distichous, successively many-flowered raceme up to 15 mm long, borne on top of the leaf by a filiform peduncle 9-11 mm long; floral bracts 1.5 mm long; pedicels 1 mm long; ovary 2.5 mm long; **sepals** yellow, entire, convex, carinate, ovate, acute, the dorsal sepal 3 mm long, 2.25 mm wide, connate to the lateral sepals for 0.25 mm, the lateral sepals 2.75 mm long, 1.5 mm wide, connate 1 mm; **petals** orange, transversely bilobed, minutely pubescent, 0.8 mm long, 3 mm wide, the lobes obliquely oblong, obtuse, the upper lobe subfalcate, slightly longer; **lip** red-purple, glabrous, bilaminate, the blades ovate, convex, 1.3 mm long, with acute apices and rounded bases, the connectives oblong, the body broad, connate to the base of the column, the obtuse sinus with a triangular, pubescent appendix; **column** 1 mm long, the anther apical, the stigma ventral.

JAMAICA: **Cornwall**: Trelawny, 4 miles westnorthwest of Troy on Crown Lands Road, alt. 2,200-2,400 ft., *H.A. & E.B. Hespenheide, J.S. Calver & R.E. Ricklefs 1182* (Holotype: PH; Isotypes: AMES, BM, DUKE, K); *M.R. Crosby, H.A. Hespenheide & W.R. Anderson 744* (UCWI); near Troy, alt. 640 m, 10 Nov. 1985, *C. & J. Luer, H.P. & A. Jesup 11468, 11473* (MO); Island View Hill, 1.5 miles north of Warsop, alt. 2,000-2,200 ft., *G.R. Proctor 21356* (IJ).

Apparently restricted to the seasonally dry, scrub forests of the southeastern part of the Cockpit Country, *Lepanthes convexa* is characterized by a thick, elliptical leaf; a shorter, congested inflorescence borne on the front surface; convex, ovate sepals; transversely bilobed petals; and a bilaminate lip with glabrous, ovate blades and a pubescent, triangular appendix.

Lepanthes divaricata Fawc. & Rendle, Trans. Linn. Soc. London, Bot. ser. 2, 7: 11, 1904.

Ety.: From the Latin *divaricatus*, "divaricate," referring to the spreading sepals.

Syn.: *Lepanthes divaricata* var. *minor* Fawc. & Rendle, Trans. Linn, Soc. London, Bot. ser. 2, 7: 12, 1904.

Ety.: From the Latin *minor*, "less," referring to the smaller plant and flowers.

Plant small to medium in size, epiphytic, caespitose; roots slender. Ramicauls erect, slender, 3-10 cm long, enclosed by 5-9 minutely ciliate, lepanthiform sheaths. **Leaf** erect, coriaceous, elliptical, acute, slightly acuminate, 2-3 cm long, 1-1.7 cm wide, the base cuneate into a petiole 1 mm long. **Inflorescence** a congested, distichous, successively several-flowered raceme to 10 mm long, borne either on top of or beneath the leaf by a filiform peduncle 8-10 mm long; floral bracts 1-1.5 mm long; pedicels 1-1.25 mm long; ovary 0.75 mm long; **sepals** yellow, often suffused with red, entire, ovate, acute, the dorsal sepal 3.25 mm long, 2 mm wide, connate to the lateral sepals for 0.25 mm, the lateral sepals oblique, diverg-

ing, 3.25 mm long, 1.75 mm wide, connate 0.5 mm; **petals** yellow, suffused with purple, microscopically pubescent, transversely bilobed, 0.6 mm long, 2.5 mm wide, the lobes oblong, the upper lobe slightly longer, subtruncate, the apex of the lower lobe rounded; **lip** yellow, suffused with purple, glabrous, bilaminate, the blades narrowly ovate as thickened margins of the rounded connectives, 1.2 mm long, flanking the column, the apices acute, minutely ciliate, the connectives broadly cuneate, the body broad, connate to the base of the column, the sinus rounded, the appendix external, short, oblong, pubescent; **column** stout, 1 mm long, the anther and stigma apical.

JAMAICA: **Surrey**: Near Woodcutter's Gap, alt. 4,000 ft., 6 Mar. 1900, *W. Harris s.n.* (Lectotype: BM, designated by Hespenheide, 1968, *A Revision of the West Indian species of Lepanthes*, p. 11; Isolectotype: NY); near Woodcutter's Gap, 6 Mar. 1900, *W. Harris 7832, 7833* (C). "Ellen Aire," Moy Hall, 14 Sept. 1887, *F.C. Sullivan s.n.* (holotype of var. *minor*: BM; isotype: NY); near Portlands Gap, 4 Aug. 1902, *W. Fawcett s.n.* (AMES, BM); St. Andrew, Lower western Ridge of Blue Mtn Peak, alt. 1700-1950 m, 4-9 July 1926, *W.R. Maxon 9847* (C, US); ridge from Morse's Gap to John Crow Peak, alt. 4,900-5,500 ft., *G.R. Proctor 9514* (AMES, IJ, NY, AMES); Fairy Glade, Mt. Horeb, alt. 4,100 ft., *M.R. Crosby, H.A. Hespenheide & W.R. Anderson 365* (DUKE); Fairy Glade, alt. 1340-1380 m, 13 Nov. 1985, *C. & J. Luer, H.P. & A. Jesup 11485* (MO). Portland, ridge from Blue Mountain Peak to Sugar Loaf, alt. 6,600 ft., *G.R. Proctor 4338* (IJ, AMES); Mt. Caledonia, alt. 4,500 ft., *C.D. Adams 12536* (UCWI); St. Thomas, summit of Blue Mountain Peak, alt. 2100-2200 m, *W.R. Maxon 9871* (AMES, NY, US); near Portland Gap, alt. 5,300-6,300 ft., *C.D. Adams 10601* (UCWI).

Endemic and frequent in the Blue Mountains on the eastern part of the island, *Lepanthes divaricata* is characterized by the congested, distichous inflorescence shorter than the elliptical leaf; narrowly ovate, acute sepals, the laterals diverging; transversely oblong petals; and a bilaminate lip, the blades ovate and flanking the column, and with an oblong, external, pubescent appendix.

Lepanthes elliptica Fawc. & Rendle, J. Bot. 47: 5, 1909.

Ety.: From the Latin *ellipticus*, "elliptical," referring to the shape of the leaves.

Syn.: *Lepanthes arcuata* Fawc. & Rendle, J. Bot. 47: 6, 1909.
Ety.: From the Latin *arcuatus*, "arcuate," possibly referring to the commonly arching ramicaul.

Plant small, epiphytic, caespitose; roots slender. Ramicauls erect, somewhat arching, slender, 15-30 cm long, enclosed by 6-8 long-ciliate, lepanthiform sheaths. **Leaf** erect, coriaceous, more or less suffused with purple beneath, elliptical, acute to subacute, 13-17 mm long, 10-16 mm wide, the base cuneate into a petiole 1 mm long. **Inflorescence** a congested, distichous, successively several-flowered raceme to 7 mm long, borne beneath the leaf by a filiform peduncle 3-6 mm long; floral bracts echinate, 1 mm long; pedicels 1-1.5 mm long; ovary 1 mm long; **sepals** red-purple, entire, ovate, acute, the dorsal sepal 3.5-4.5 mm long, 2.5 mm wide, connate to the lateral sepals for 0.5 mm, the lateral sepals oblique, 3.5-4.5 mm long, 2.25 mm wide, connate 1 mm; **petals** yellow-orange, minutely pubescent, transversely bilobed, 0.5 mm long, 1 mm wide, the lobes subequal, subquadrate-truncate; **lip** purple, ciliate, bilaminate, the blades narrowly ovate as thickened margins of the falcate connectives, 2 mm long, embracing the column, the the apices narrowly acute, attenuate, minutely ciliate, protruding beyond the apex of the column, the connectives cuneate, the body broad, connate to the base of the column, the sinus acute, with a small, oblong, pubescent appendix; **column** stout, 1.25 mm long, the anther and stigma apical.

JAMAICA: **Middlesex**: St. Ann, Hollymount, Mt. Diablo, alt. 2,700 ft., *W. Harris 9895a* (Holotype: BM; Isotypes: NY, UCWI); Hollymount, Mt. Diablo, alt. 2,600 ft., 17 Feb. 1905, *W. Harris s.n.* (holotype of *L. arcuata*: BM; isotype: UCWI); Schwallenburgh property northeast of Mt. Diablo, alt. 2,000-2,300 ft., *G.R. Proctor & R.A. Howard 13637* (IJ); Union Hill near Moneague, alt. 700 m, *N.L. Britton & A. Hollick 2795* (AMES, NY); Mt. Diablo, south of Moneague, alt. 830 m, 11 Nov. 1985, *C. & J. Luer, H.P. & A. Jesup 11479* (MO). **St. Catherine**: Hollymount, Mt. Diablo, *C.D. Adams 11709* (UWI); site of "Blue Mountain," 2.5 miles south of Hollymount Road, Mt. Diablo, alt. 2,800-2,900 ft., *H.A. & E.B. Hespenheide, J.S. Culver & R.E. Ricklefs 1419* (DUKE); Clarendon, Banana Ground to Sunbury, alt. 3,050 ft., *C.D. Adams 8435* (UCWI).

This species is endemic and frequent in the humid forests of the central part of the island. The type localities for both *Lepenthes elliptica* Fawc. & Rendle and *L. arcuata* Fawc. & Rendle are Hollymount, Mt. Diablo. The differences between the two types could not be substantiated by either Adams or Hespenheide (Hespenheide, 1968).

Lepanthes elliptica is characterized by the long-ciliate, lepanthiform sheaths; the congested, distichous inflorescence shorter than the elliptical leaf that is more or

less suffused with purple; ovate, acute sepals; short, transverse petals with subequal lobes more or less subquadrate; and a bilaminate lip, the blades narrowly ovate with attenuated apices protruding beyond the apex of the column. The small, pubescent appendix is held between the margins of the sinus.

Lepanthes hollymountensis Luer & H.P.Jesup, Selbyana 23(1); 11, 2002.

Ety.: Named for Hollymount where this species, or putative hybrid, is found.

Plant small, epiphytic, caespitose; roots slender. Ramicauls erect to more or less arching, slender, 3-5.5 cm long, enclosed by 7-8 minutely scabrous, lepanthiform sheaths. **Leaf** erect to subpendent, coriaceous, elliptical-ovate, subacute to obtuse, 16-20 mm long, 11-14 mm wide, the base cuneate into a petiole 1-1.5 mm long. **Inflorescence** a congested, distichous, successively several-flowered raceme 6-12 mm long, borne on top of the leaf by a filiform peduncle 5-8 mm long; floral bracts muricate, 0.5 mm long; pedicels 0.75 mm long; ovary 1 mm long; **sepals** yellow-green, entire, ovate, subacute to ovate, the dorsal sepal 2.2 mm long, 1.6 mm wide, connate to the lateral sepals for 0.25 mm, the lateral sepals oblique, 2 mm long, 2.2 mm wide together, connate 1 mm; **petals** microscopically pubescent, transversely bilobed with lobes obliquely diverging, 0.6 mm long, 1.5 mm wide, the upper lobe bright crimson, obliquely triangular, narrowly rounded at the apex, 1 mm long, the lower lobe orange, obliquely triangular, rounded at the apex, 0.5 mm long; **lip** bright crimson, cellular-glandular, bilaminate, the blades thick, oblong with the apex narrowly rounded, with the base rounded, 0.6 mm long, flanking the column, the connectives cuneate-oblong, thick, the body broad, connate to the base of the column, the appendix proportionately large, oblong, pubescent, originating external to the sinus; **column** stout, 0.6 mm long, the anther apical, the stigma ventral.

JAMAICA: **St. Catherine**: Hollymount, Mt. Diablo, collected by Henry Brown, flowered in cultivation, Bristol, CT, 26 Apr. 1987, by *H.P. Jesup s.n.* (Holotype: MO), C. Luer illustr. A12846.

This taxon is possibly a natural hybrid between *Lepanthes wullschlaegelii* Fawc. & Rendle, and either *L. woodiana* Fawc. & Rendle, or *L. interiorubra* Hespenh., all three taxa occurring in the area around Mt. Diablo. Plants intermediate between *L. interiorubra* and the previous two were noted by Hespenheide (1968). The sepals of all three taxa are similar, those of *L. wullschlaegelii* being larger.

Lepanthes hollymountensis resembles a robust variation of *L. woodiana* with more elongate lobes of the petals. The obliquely diverging lobes of the petals of *L. hollymountensis* are similar to those of *L. wullschlaegelii*, but the blades of the lip are half the size and flank the column like those of *L. interiorubra* instead of covering it.

Lepanthes interiorubra Hespenh., Proc. Acad. Nat. Sci. Philadelphia 120: 14, 1968.

Ety.: From the Latin *interioruber*, "red interior," referring to the color of the sepals.

Plant small, epiphytic, caespitose; roots slender. Ramicauls erect, slender, 3-4.5 cm long, enclosed by 5-6 ciliate, lepanthiform sheaths. **Leaf** erect, coriaceous, elliptical-ovate, subacute to acute, 17-20 mm long, 8-9 mm wide, the base cuneate into a petiole 1 mm long. **Inflorescence** a congested, distichous, successively several-flowered raceme up to 5 mm long, borne on top of the leaf by a filiform peduncle 5-9 mm long; floral bracts glabrous, 1 mm long; pedicels 1 mm long; ovary 1 mm long; **sepals** yellow, red toward the base, entire, ovate, subacute, the dorsal sepal 2 mm long, 1.5 mm wide, connate to the lateral sepals for 0.2 mm, the lateral sepals oblique, 1.75 mm long, 1.9 mm wide together, connate 0.8 mm; **petals** red-purple, minutely pubescent, transversely bilobed, 0.6 mm long, 1.5 mm wide, the upper lobe oblong-triangular, rounded at the apex, 1.2 mm long, the lower lobe transversely triangular, broadly rounded at the apex, 0.4 mm long, 0.6 mm wide; **lip** red-purple, cellular-glandular, bilaminate, the blades thick, ovoid with the apex narrowly rounded, with the base broadly rounded, 0.6 mm long, flanking the column, the connectives broadly oblong, thick, the body broad, connate to the base of the column, the anterior margin with an oblong, pubescent appendix; **column** stout, 0.6 mm long, 0.4 mm wide, the anther apical, the stigma ventral.

JAMAICA: **St. Catherine**: Hollymount, Mt. Diablo, site of "Blue Mountain," 2.5 miles south of Hollymount Road, alt. 2800-2900 ft, *H.A. & E.B. Hespenheide, J.S. Calver & R.E. Ricklefs 1418* (Holotype: PH; Isotypes: AMES, BM, DUKE, K); Mt. Diablo, collected by Ancile Glauden, flowered in cultivation in Bristol, CT, Dec. 1996, by *H.P. Jesup s,n.* (MO), C. Luer illustr. 18097.

Lepanthes interiorubra is not remarkably distinct vegetatively from other species found in the area of Mt. Diablo. It is distinguished by a small habit with ovate leaves shorter than slender ramicauls. The short, few-flowered raceme is much shorter than the leaf upon which it is borne. The yellow sepals are red toward the base, and ovate with the laterals connate above the middle. The petals and lip are red-purple. The upper lobe of the petals is thrice longer than the blunt, lower lobe. The blades of the lip are ovate with broad connectives and body with the appendix oblong and pubescent.

Lepanthes jesupii Luer, Selbyana 22: 107, 2001.

Ety.: Named in honor of H. Phillips Jesup of Bristol, CT., who has successfully cultivated this species for over 20 years.

Plant medium in size, epiphytic, caespitose; roots slender. Ramicauls erect, slender, 3-5 cm long, enclosed by 7-8 long-ciliate, lepanthiform sheaths. **Leaf** erect, coriaceous, green, broadly elliptical to suborbicular, the apex obtuse to rounded, the sides of mature leaves deflexed, 25-35 mm long, 21-27 mm wide, the rounded base abruptly contracted into a petiole 2 mm long. **Inflorescence** a congested, distichous, successively several-flowered raceme up to 7 mm long, borne on top or beneath the leaf by a filiform peduncle 6-7 mm long; floral bracts 1.5 mm long; pedicels 1.5 mm long; ovary 2 mm long; **sepals** light yellow, entire, ovate, acute, the dorsal sepal 6.5 mm long, 3.75 mm wide, connate to the lateral sepals for 1.75 mm, the lateral sepals oblique, 6 mm long, 3 mm wide, connate 1.5 mm; **petals** light yellow, minutely pubescent, transversely bilobed, 1 mm long, 1.5 mm wide, the lobes subequal in size, the upper lobe oblong, oblique, rounded, the lower lobe triangular, acute, with an obtuse angle on the margin; **lip** light yellow, glabrous, bilaminate, the blades narrowly ovate as thickened margins of the falcate connectives, 2 mm long, embracing the column, the the apices narrowly acute, attenuate, protruding beyond the apex of the column, the connectives cuneate, the body broad, connate to the base of the column, the sinus acute, with a minute, oblong, pubescent appendix; **column** stout, 1.5 mm long, the anther and stigma apical.

JAMAICA: **Surrey**: St. Thomas, Rio Grande near Bowden Pen, alt. 900 ft., *M.R. Crosby & W.R. Anderson 1087* (DUKE, UCWI); Rio Grande neasr Bowden Pen, collected by H. Brown, 1967, flowered in cultivation in Bristol, CT., 26 Apr. 26 Apr. 1987, by *H.P. Jesup s.n.* (Holotype: MO), C. Luer illustr. A12873. ,

This rare species is apparently endemic in a limited area of forest of the eastern part of the island. One plant has been in cultivation for over 20 years by H.P. Jesup in Connecticut. It had been considered to be a variation of the rather frequent *Lepanthes elliptica* Fawc. & Rendle that is found in the central part of the island.

Lepanthes jesupii is differs from *L. elliptica* in the larger habit; large, green, round leaves with the sides more or less deflexed; larger, pale yellow flowers; petals with oblique lobes that are not quadrate and truncate; and glabrous blades of the lip.

Lepanthes lanceolata Hespenh., Proc. Acad. Nat. Sci. Philadelphia 120: 18, 1968.

Ety.: From the Latin *lanceolatus*, "lanceolate," referring to the shape of the leaf.

Plant small to medium in size, epiphytic, caespitose; roots slender. Ramicauls erect, slender, 4-10 cm long, enclosed by 5-9 microscopically ciliate-scabrous, lepanthiform sheaths. **Leaf** suffused with purple beneath, erect, coriaceous, elliptical-ovate, acute, 20-45 mm long, 12-20 mm wide, the base cuneate into a petiole 1 mm long. **Inflorescence** a congested, distichous, successively several-flowered raceme up to 13 mm long, borne behind the leaf by a filiform peduncle 7-8 mm long; floral bracts sparsely ciliate, 1.5 mm long; pedicels 1.25 mm long; ovary 1 mm long; **sepals** light yellow, entire, broadly ovate, the dorsal sepal obtuse, 2.7-3.4 mm long, 2.7-3 mm wide, connate to the lateral sepals for 0.75 mm, the lateral sepals subacute, oblique, 2.6-3 mm long, 1.7-2 mm wide, connate 1 mm; **petals** yellow, suffused with purple basally, transversely bilobed, microscopically pubescent, 1-1.5 mm long, 2-2.5 mm wide, the upper lobe broadly obovate to suborbicular, the lower lobe smaller, broadly triangular, obtuse; **lip** bilaminate, the blades purple with white apices, narrowly elliptical, microscopically pubescent, 1.4 mm long, with the ends narrowly obtuse, the connectives cuneate, the body narrow, connate to the base of the column, the obtuse sinus with a narrowly oblong, pubescent appendix; **column** 1 mm long, the anther apical, the stigma ventral.

JAMAICA: **Cornwall**: St. James, 0.5 mile west of Mocho Crossroads, alt. 2,200-2,400 ft., *H.A. & E.B. Hespenheide, J.S. Calver & R.E. Ricklefs 1673* (Holotype: PH; Isotype: DUKE); west of Mocho Crossroads, collected by H.P. & A. Jesup, 1979, flowered in cultivation by J & L Orchids, Easton, CT., 25 Apr. 1987, *C. Luer A12837* (MO).

Lepanthes lanceolata is known from only one locality of seasonally dry, scrub forest in the southwestern part of the Cockpit Country. It is characterized by an elliptical-ovate leaf; a shorter, congested inflorescence borne along the back side; broadly ovate sepals; broad, bilobed petals; and a bilaminate lip with glabrous, narrowly elliptical blades and a pubescent, narrowly oblong appendix.

Lepanthes lanceolata is similar to *L. obtusipetala* Fawc. & Rendle, and may be a variation of the latter. It is distinguished from the latter by the apices of the lateral sepals that slightly diverge, slightly wider upper lobes of the petals, and a slightly longer appendix that is narrowly oblong with of a terminal segment.

Lepanthes loddigesiana Rchb.f., Xenia Orchidaceae 1: 145, 1856.

Ety.: Named in honor of Conrad Loddiges, publisher of *The Botanical Cabinet*.

Syn.: *Lepanthes tridentata* sensu Lindl., Edwards's Bot. Reg. 21: t. 1762, 1835, not (Sw.) Sw.

Plant small, epiphytic, caespitose; roots slender. Ramicauls erect, slender, 1-3 cm long, enclosed by 5-7 minutely ciliate, lepanthiform sheaths. **Leaf** erect to suberect, coriaceous, broadly elliptical, obtuse, 8-14 mm long, 6-11 mm wide, the base broadly cuneate into a petiole ca. 1 mm long. **Inflorescence** an erect, lax, successively several-flowered raceme up to 23 mm long, borne beyond the leaf by a filiform peduncle ca. 10 mm long; floral bracts 1.5 mm long; pedicels 1.5 mm long; ovary 1 mm long; **sepals** glabrous, entire, carinate, ovate, acute, the dorsal sepal purple, 3 mm long, 1.8 mm wide, 3-veined, connate to the lateral sepals for 0.5 mm, the lateral sepals yellow. purple toward the base, oblique, 3 mm long, 1.6 mm wide, connate 1.2 mm; **petals** purple, minutely pubescent, transversely bilobed, 0.6 mm long, 1.8 mm wide, the lobes subequal in size, the upper lobe oblong, oblique, rounded at the apex, the lower lobe triangular, obtuse; **lip** yellow, glabrous (microscopically cellular), bilobed, the lobes thick, hemispherical, 1.3 mm long, with ends rounded, the inner margin of the rounded apex very shortly acuminate, the connectives nearly as broad as the lobes, the body broad, connate to the base of the column, the anterior margin developed into a broadly triangular, villous appendix; **column** stout, 0.5 mm long, the anther dorsal, and stigma ventral.

JAMAICA: without locality, imported by *Messrs. Loddiges s.n.* (Holotype: illustration published by Lindley, Edwards's Bot. Reg. 21: t. 1762, 1835).

Middlesex: St. Ann, Hollymount, Mt. Diablo, alt. ca. 2,700 ft., collected and cultivated Mar. 1996 by *A. Gloudon s.n.* (MO), C. Luer illustr. 17851.

An illustration of this distinctive species was published under the name *Lepanthes tridentata* by Lindley in Edwards's *Botanical Register* in 1835. Realizing that this species was not the *L. tridentata* of Swartz, Reichenbach published it as *L. loddigesiana* in his first volume of *Xenia Orchidaceae* in 1856, based on Lindley's publication. Loddiges had received living plants from Jamaica from which the illustration was made. Lindley stated that this was the first species of the genus to be seen alive in Europe. This is contrary to the usual scenario of common species being discovered first.

Lepanthes loddigesiana is very rare, not having been recognized again until found in culture by Jesup in Jamaica in 1996. Fawcett & Rendle had never seen the plant. Hespenheide, who considered *L. bilabiata* Fawc. & Rendle synonymous with *L. loddigesiana*, had not seen the plant. Apparently no herbarium record was made of the original collection.

A collection of an unidentified plant mixed with *Lepanthes elliptica* Fawc. & Rendle was made by Ancile Gloudon in March, 1996, and cultivated by him in Kingston. There, a flowering plant was discovered by H. Phillips Jesup who immediately recognized the species as something he had not seen before. Flowers were preserved in liquid from which the accompanying illustration was made. It leaves no doubt that it is the same species pictured a century and a half earlier in the *Botanical Register*.

Lepanthes loddigesiana is a small plant characterized by an erect, loose raceme of small flowers that surpasses the small, broadly elliptical leaf. The sepals are ovate, acute and glabrous; the petals are bilobed with the lobes broad, obtuse and oblique; and the lobes of the lip are thick, erect discs without developing a true blade. A minute, acute point is present on the inner margin of the apex. The body of the lip is broad with a broadly triangular, long-pubescent appendix.

Lepanthes multiflora C.D.Adams & Hespenh., Proc. Acad. Nat. Sci. Philadelphia 120: 16, 1968.

Ety.: From the Latin *multiflorus*, "with many flowers," referring to the inflorescence.

Plant very small, epiphytic, caespitose; roots slender. Ramicauls erect, slender, 2-5 mm long, enclosed by 2-3 loose, microscopically scabrous, lepanthiform sheaths. **Leaf** erect, thickly, coriaceous, elliptical, obtuse, 7-16 mm long, 5-7 mm wide, the base broadly cuneate into a petiole 1 mm long. **Inflorescence** a congested, distichous, successively many-flowered raceme up to 15 mm long, borne beyond the leaf by a filiform peduncle 13-25 mm long; floral bracts 0.75 mm long; pedicels 0.75 mm long; ovary 1.25 mm long; **sepals** yellow, entire, the dorsal sepal elliptical, obtuse, 2.2 mm long, 1.2 mm wide, practically free from the lateral sepals, the lateral sepals oblong with rounded apices, 2.2 mm long, 0.8 mm wide, connate 1 mm; **petals** yellow, transversely bilobed, cellular-glandular, 0.4 mm long, 2 mm wide, the lobes obliquely oblong, obtuse, the upper lobe narrowly subfalcate, slightly longer; **lip** yellow, glabrous, bilaminate, the blades ovate, 0.5 mm long, with acute apices and rounded bases, the connectives oblong, the body broad, connate to the base of the column, the sinus a protruding, triangular, microscopically pubescent third lobe; **column** 0.4 mm long, the anther dorsal, the stigma apical.

JAMAICA: **Cornwall**: Trelawney, 4 miles westnorthwest of Troy on Crown Lands Road, alt. 2,200-2,400 ft., *H.A. & E.B. Hespenheide, J.S. Calver & R.E. Ricklefs 1183* (Holotype: PH; Isotypes: AMES, BM, DUKE), *M.R. Crosby, H.A. Hespenheide & W.R. Anderson 743* (UCWI); 6 miles westnorthwest of Troy on Crown Lands Road, alt. 2,000-2,200 ft., *H.A. & E.B. Hespenheide, J.S. Calver & R.E. Ricklefs 1259* (DUKE, K, PH); near Troy, alt. 640 m, 10 Nov. 1985, *C. & J. Luer, H.P. & A. Jesup 11467* (MO); St. James, White Rock Hill, 1 mile south of Sweet Water, alt. 2,100 ft., *G.R. Proctor 22988* (JI).

This minute species is apparently endemic in the seasonally dry, scrubby forests of the Cockpit Country. It is characterized by the elliptical leaf far surpassed by the peduncle bearing a congested, many-flowered raceme; minute flowers with oblong, obtuse sepals; transversely bilobed petals; and a bilaminate lip with tiny, ovate, glabrous blades and a comparatively large, equal-sized, microscopically pubescent, triangular middle lobe, the appendix.

Lepanthes obtusa Fawc. & Rendle, Trans. Linn. Soc. London, Bot. ser. 2, 7: 11, 1904.

Ety.: From the Latin *obtusus*, "obtuse," referring to the apices of the petals.

Plant medium in size to large, epiphytic, caespitose; roots slender. Ramicauls erect, slender, 3-12 cm long, enclosed by 6-10 minutely ciliate, lepanthiform sheaths. **Leaf** erect, thinly coriaceous, suffused with purple, especially beneath, elliptical, acute, slightly acuminate, 2.5-6 cm long, 1-2.3 cm wide, the base cuneate into a petiole 1-3 mm long. **Inflorescence** a congested, distichous, successively several-flowered raceme up to 10 mm long, borne beneath the leaf by a filiform peduncle 6-16 mm long; floral bracts echinate, 1-1.25 mm long; pedicels 1-1.25 mm long; ovary 1 mm long; **sepals** red-purple to orange-brown, entire, broadly ovate, obtuse, the dorsal sepal 3.25-5 mm long, 3.5-4 mm wide, connate to the lateral sepals for 1 mm, the lateral sepals oblique, 3-5 mm long, 2-3 mm wide, connate 1.5 mm; **petals** purple, or orange suffused with purple, microscopically pubescent, transversely bilobed, 1 mm long, 2.25-3 mm wide, the lobes of equal length, the upper lobe oblong, truncate, the lower lobe triangular, the apex rounded; **lip** purple, cellular-glandular, bilaminate, the blades narrowly ovate, 1.4 mm long, the apices narrowly obtuse, the bases rounded, the connectives broadly cuneate, the body broad, connate to the base of the column, the appendix in the sinus, pedunculated, ovoid, pubescent, minutely notched at the apex; **column** stout, 1 mm long, the anther apical, the stigma ventral.

JAMAICA: **Surrey**: Portland, road to Vinegar Hill from Morse's Gap, alt. 4,000 ft., 29 Apr. 1902, *W. Harris s.n.* (Lectotype: BM; Isotype: K); road to Vinegar Hill, alt. 1175-1500 m, *W.R. Maxon & E.P. Killip 708* (AMES, F, NY, US); vicinity of Vinegar Hill, alt. 1200 m, 23 June 1924, *W.R. Maxon 2774*

(US); John Crow Mountains, 1.5-2.5 miles southwest of Ecclesdownm, alt. 1500-2500 m, *G.R. Proctor 16264* (AMES, IJ); St. Thomas, Blue Mountain Peak to Portland Gap, alt. 6500-7,400 ft., *M.R. Crosby, H.A. Hespenheide & W.R. Anderson 943* (DUKE); crest of Gossamer Peak, alt. 800-900 m, *W.R. Maxon 9305* (AMES, NY, US); Middlesex Co., St. Ann, 2.2 miles west of Albion, alt. 2,300-2,400 ft., *H.A. & E.B. Hespenheide, J.S. Calver & R.E. Ricklefs 963* (DUKE); Schwallenburgh property, northeastern slopes of Mt. Diablo, alt. 2,000-2,300 ft., *G.R. Proctor & R.A. Howard 15144* (IJ); south of Moneague, Mt. Diablo, alt. 850 m, 11 Nov. 1985, *C. & J. Luer, H.P. & A. Jesup 11475* (MO); St. Catherine, Resource, Mt. Diablo, alt. 2,750 ft., *C.D. Adams 10810* (UCWI); just west of Hollymount, Mt. Diablo, alt. 2,700-2,800 ft., *H.A. & E.B. Hespenheide, J.S. Calver & R.E. Ricklefs 1337* (DUKE, PH); St. Andrew, Fairy Glade, Mt. Horeb, alt. 4,100 ft., *M.R. Crosby, H.A. Hespenheide & W. R. Anderson 359* (DUKE); Fairy Glade, alt. 1340-1380 m, 13 Nov. 1985, *C. & J. Luer, H.P. & A. Jesup 11488* (MO).

Endemic but common in humid forests of the central and eastern parts of the island, *Lepanthes obtusa* is recognized by the purplish, elliptical, slightly acuminate leaves; congested, distichous inflorescences shorter than the leaf; broadly ovate, obtuse sepals; transversely bilobed, obtuse petals; and a bilaminate lip with ovate blades and a pedunculated, ovoid, pubescent appendix.

Lepanthes obtusipetala Fawc. & Rendle, Fl. Jamaica 1: 72, 1910.

Bas. *Lepanthes concinna* (Sw.) Sw. var. *obtusipetala* Fawc. & Rendle, Trans. Linn. Soc. London, Bot. ser. 2, 7: 11, 1905.

Ety.: From the Latin *obtusipetalus*, "with obtuse petals," referring to the shape of the petals.

Syn.: *Lepanthes intermedia* Hespenh., Proc. Acad. Nat. Sci. Philadelphia 120: 20, 1968.

Ety.: From the Latin *intermedius*, "intermediate," referring to intermediate characters.

Plant medium in size, epiphytic, caespitose; roots slender. Ramicauls erect, slender, 4-8 cm long, enclosed by 5-9 microscopically ciliate-scabrous, lepanthiform sheaths. **Leaf** suffused with purple beneath, erect, coriaceous, elliptical-ovate, acute, 20-45 mm long, 6-15 mm wide, the base cuneate into a petiole 1-2 mm long. **Inflorescence** a congested, distichous, successively several-flowered raceme up to 13 mm long, borne behind the leaf by a filiform peduncle 5-8 mm long; floral bracts echinate, 1.5 mm long; pedicels 1-1.25 mm long; ovary 1 mm long; **sepals** light yellow, entire, ovate, acute, the dorsal sepal 4.5 mm long, 3.25 mm wide, connate to the lateral sepals for 0.75 mm, the lateral sepals oblique, 4.5 mm long, 2 mm wide, connate 1.5 mm; **petals** yellow, suffused with purple marginally and basally, transversely bilobed, microscopically pubescent, 1 mm long, 2.5 mm wide, the lobes about equal in length, the upper lobe broadly obovate, subtruncate, the lower lobe oblong with the apex rounded; **lip** bilaminate, the blades rose, narrowly elliptical, microscopically pubescent, 1.75 mm long, with the ends narrowly obtuse, the connectives cuneate, the body narrow, connate to the base of the column, the obtuse sinus with a short, oblong, pubescent appendix with a terminal segment; **column** 1 mm long, the anther apical, the stigma ventral.

JAMAICA: **Surrey**: Portland, Portland Gap, alt. 5,550 ft., 29 June 1902, *W. Fawcett s.n.* (Holotype: BM; Isotype: K); east ridge of Mossman's Peak, alt. 1700-1925 m, *W.R. Maxon 9778* (AMES, BM, NY, US); John Crow Mountains, 1.5-2.5 miles southwest of Ecclesdown, alt. 1,500-2,500 ft., *G.R. Proctor 16265* (IJ);St. Andrew, John Crow Peak, alt. 6,000 ft., *G.E. Nichols 51* (AMES, K, MO, NY, US); Sir John's Peak, alt. 6,000 ft., *N.L. Britton 202* (AMES, NY in part); St. Thomas, west ridge of Blue Mountain Peak, alt. 1700-1950 m, *W.R. Maxon 9848* (AMES, NY, US); Portland Gap to Blue Mountain Peak, alt. 6500-7,400 ft., *M.R. Crosby, H.A. Hespenheide & W.R. Anderson 853* (DUKE, UCWI). without locality, collected by B. Berliner, flowered in cultivation by H.P. Jesup in Bristol, CT., 26 Apr. 1987, *C. Luer 12877* (MO). **Cornwall**: Trelawmey, Cockpit, northwest of Troy, alt. 1750 m, *C.D. Adams 12428* (holotype of *L. intermedia*: UCWI);

Endemic, locally common, and variable in the humid, mountainous forests of the eastern part of the island, *Lepanthes obtusipetala* is characterized by an ovate-elliptical leaf; a shorter, congested inflorescence borne along the back side of the leaf; ovate sepals; transversely bilobed petals; and a bilaminate lip with glabrous, elliptical blades and a short, pubescent appendix with a terminal segment.

Hespenheide (1968) found *Lepnthes intermedia* Hespenh. to resemble closely both *L. obtusipetala* and *L. ovalis* (Sw.) Fawc. & Rendle, but it resembles the former so closely that it is treated here as a variation.

Lepanthes ovalis (Sw.) Fawc. & Rendle, Fl. Jamaica 1: 71, 1910.

Bas.: *Epidendrum ovale* Sw., Prod. Veg. Ind. Occ. 125, 1788.
Ety.: From the Latin *ovalis*, "oval," referring to the shape of the leaves.

Syn.: *Lepanthes concinna* Sw., Nova Acta Regiae Soc. Sci. Upsal. 6: 85, 1799.
Ety.: From the Latin *concinnus*, "pretty," referring to the flowers.

Syn.: *Epidendrum concinnum* (Sw.) Steud., Nomen. Bot. ed. 1, 299, 1821.
Syn.: *Lepanthes crassifolia* Rchb.f., Linnaea 41: 47, 1877.
Ety.: From the Latin *crassifolius*, "with thick leaves," referring to the plant.

Plant medium in size to large, epiphytic, caespitose; roots numerous, slender. Ramicauls erect to arching, slender, 5-18 cm long, enclosed by 8-12 minutely ciliate-scabrous, lepanthiform sheaths. **Leaf** erect, coriaceous, elliptical, acute, acuminate, 3-6 cm long, 1-2.3 cm wide, the base cuneate into a petiole 1 mm long. **Inflorescence** a congested, distichous, successively several- to many-flowered raceme up to 15 mm long, borne on top of the leaf by a filiform peduncle 10-25 mm long; floral bracts 1.5-2 mm long; pedicels 1.5-3 mm long; ovary 1.5 mm long; **sepals** yellow to orange, entire, broadly ovate, subacute, the dorsal sepal 3.75 mm long, 3 mm wide, connate to the lateral sepals for 1 mm, the lateral sepals oblique, 3.25 mm long, 2 mm wide, connate 1 mm; **petals** orange, transversely bilobed, 1 mm long, 2.75 mm wide, the upper lobe essentially glabrous, suborbicular, obtusely angled on the inner margin, the lower lobe minutely pubescent, narrowly triangular, obtuse; **lip** red-purple, cellular-glandular to minutely pubescent, bilaminate, the blades narrowly oblong along the curved margins of the connectives, poorly defined, surrounding the column, 1.4 mm long, the apices abruptly short-acuminate, in apposition, the bases narrowly obtuse, the connectives broadly cuneate, the body narrow, connate to the base of the column, the appendix oblong, pubescent, between the connectives in the natural position; **column** 1 mm long, the anther and stigma apical.

JAMAICA: summits of the mountains, *O. Swartz s.n.* (Holotype: BM; Isotype: M); without locality, *O. Swartz 1?24* (holotype of *L. concinna*: C); without locality, flowered in cultivation at Kew, (holotype of *L. crassifolia*: K). **Middlesex**: St. Ann, road to Hollymount, Mt. Diablo, alt. 2,700 ft., *G.R. Proctor 22641* (IJ); south of Moneague, Mt. Diablo, alt. 830 m, 11 Nov. 1985, *C. & J. Luer, H.P. & A. Jesup 11476* (MO). **St. Catherine**: Hollymount, Mt. Diablo, 30 Aug. 1905, *W. Harris 9892* (AMES, BM, BR in part, C, F, K, NY, UCWI, US); site of "Blue Mountain," 2.5 miles south of Hollymount Road, Mt. Diablo, alt. 2800-2900 ft, *H.A. & E.B. Hespenheide, J.S. Calver & R.E. Ricklefs 1415* (DUKE). **Surrey**: St. Andrew, Morse's Gap, alt. 5,000 ft., *C.D. Adams 11353* (UCWI); Blue Mountains, 1987, *O. Hansen 13* (C); Blue Mountains above Cinchona, alt. 1600 m, 15 Dec. 1958, *J.G. Hawkes, J.P. Hjerting & R.N. Lester 2277* (C); Fairy Glade, Mt. Horeb, alt. 4,100 ft., *M.R. Crosby, H.A. Hespenheide & W.R. Anderson 294, 366* (DUKE); Fairy Glade, alt. 1340-1380 m, 13 Nov. 1985, *C. & J. Luer, H.P. & A. Jesup 11484* (MO); Portland, below Vinegar Hill, alt. 3,900 ft., *W. Harris 10091* (AMES, NY, UCWI); Mt. Caledonia, alt. 4,300 ft., *C.D. Adams 11609* (UCWI); St. Thomas, southern slopes of Gossamer Peak, alt. 750-900 m, *W.R. Maxon 9195* (AMES, BM, NY, US); southern slopes of Maccasucker Bump, alt. 825-1025 m, *W.R. Maxon 9607* (AMES, NY, US), *9560* (AMES, NY, US). 1887, *F. C. Sullivan s.n.* (BM).

Endemic in Jamaica, this species is common and widely distributed in appropriate localities in the eastern half of the island, from the Mt. Diablo region through the Blue Mountains. It was discovered by Olaf Swartz, and became the first species of *Lepanthes* to be described, albeit in the genus *Epidendrum*.

Vegetatively the largest species of the genus on the island, *Lepanthes ovalis* is characterized by a congested, distichous inflorescence shorter than the elliptical leaf that is more or less acuminate at the apex. The flowers are small with broadly ovate sepals, and the petals are transversely bilobed, the upper lobe rounded and considerably larger than the lower lobe. The lip is bilaminate, but the blades are merely flattened margins of broadly rounded, cuneate connectives. The apices are abruptly short-acuminate and held in apposition below the stigma. The appendix is a well-formed, oblong, pubescent structure held between the connectives in the natural position.

Lepanthes proctorii Garay & Hespenh., Proc. Acad. Nat. Sci. Philadelphia 120: 9, 1968.

Ety.: Named in honor of George R. Proctor, who first discovered this species.

Plant small, epiphytic, caespitose; roots slender. Ramicauls erect, slender, 3.5-6 cm long, enclosed by 6-9 minutely ciliate, lepanthiform sheaths. **Leaf** erect, coriaceous, elliptical, subacute, 7-17 mm long, 5-10 mm wide, the base cuneate into a petiole 1 mm long. **Inflorescence** a subdense, distichous, successively many-flowered raceme up to 8 cm long including the filiform peduncle 2-6 cm long, borne far beyond the leaf; floral bracts 1 mm long; pedicels 1.5 mm long; ovary 1.5 mm long; **sepals** translucent, entire, acutely reflexed about the ovary, ovate, acute, the dorsal sepal 3 mm long, 1.3 mm wide, connate to the lateral sepals for 0.25 mm, the lateral sepals 2.75 mm long, 1 mm wide, connate 0.5 mm; **petals** red, transversely bilobed, fimbriate, minutely pubescent, 0.5 mm long, 4 mm wide, the lobes narrowly triangular, acute, attenuate, the upper lobe longer; **lip** red, minutely pubescent, bilobed, with basal angles short, acute, erect, flanking the column, the blades subtriangular, acute, attenuate, 2.2 mm long, connate to the base of the column, the sinus with a minute, pubescent, triangular appendix; **column** 1 mm long, the anther dorsal, the stigma ventral.

JAMAICA: **Surrey**: Portland, east slope of John Crow Mountains, 1.5 miles southwest of Ecclesdown, alt. 1500-2,000 ft., *G.R. Proctor 9244* (Holotype: IJ); Proctor's Pool, alt. 2,500 ft., 27 July 1963, *C.D. Adams 9150* (UCWI); same collection data, *M.R. Crosby, H.A. Hespenheide & W.R. Anderson 939* (AMES, DUKE, UCWI); collected by H. Brown, obtained by H.P. Jesup in 1968, flowered in cultivation in Bristol, CT., Nov. 1988, *C. Luer 13776* (MO).

Reportedly common in the higher areas of the John Crow Mountains of eastern Jamaica, *Lepanthes proctorii* is characterized by a small, elliptical leaf borne by a considerably longer ramicaul. A weak, flexible peduncle, much longer than the raceme, exceeds the leaf. In life, the flower resembles a tiny, red gnat hovering high above the plant (pers. comm. H.P. Jesup). The sepals are acutely reflexed; the petals are fimbriate with long-attenuate lobes; the lip is bilobed with the triangular apical portions attenuate and much larger than the tiny basal angles flanking the protruding column.

Lepanthes pulchella (Sw.) Sw., Nova Acta Regiae Soc. Sci. Upsal. 6: 86, 1799.

Bas.: *Epidendrum pulchellum* Sw., Prod. Veg. Ind. Occ. 125, 1788.

Ety.: From the Latin *pulchellus*, "beautiful," referring to the flowers.

Plant very small, epiphytic, caespitose; roots slender. Ramicauls erect, suberect, to horizontal, slender, 3-10 mm long, enclosed by 2-3 microscopically scabrous, lepanthiform sheaths. **Leaf** erect, coriaceous, broadly elliptical, obtuse, 7-11 mm long, 6-7.5 mm wide, the base broadly cuneate into a petiole 0.5 mm long. **Inflorescence** a congested, distichous, successively several-flowered raceme up to 11 mm long, borne beyond the apex of the leaf by a filiform peduncle 5-12 mm long; floral bracts 1 mm long; pedicels 1 mm long; ovary 1 mm long; **sepals** yellow, denticulate, ovate, acute, long-attenuate, the dorsal sepal 6.5-7 mm long, 2 mm wide, connate to the lateral sepals for 0.5 mm, the lateral sepals oblique, 6.5-7 mm long, 2 mm wide, barely connate at the base; **petals** purple, minutely-pubescent, transversely bilobed, 0.6 mm long, 3.4 mm wide, the lobes about equal in size and shape, oblong with the apices obliquely truncate; **lip** purple, minutely ciliate, glandular pubescent, bilaminate, the blades narrowly oblong, 1.4 mm long, embracing the column, the ends narrowly obtuse, the connectives cuneate, the body narrow, connate to the column above the base, the appendix a minute, pubescent swelling in the sinus; **column** 1.5 mm long, the anther and stigma apical.

JAMAICA: **Surrey**: Summit, Mt. Catherine, *Swartz s.n.* (Holotype: BM, photograph; Isotypes: C, M). Morse's Gap, alt. 1500 m, 12 Mar. 1920, *W.R. Maxon & E.P. Killip 1031a* (US). Portland: Port Royal Mountains, Caledonia Peak, alt. 4,200 ft., 10 July 1952, *G.R. Proctor 6906*; north of Newhaven Gap, alt. 5,500 ft., *G.R. Proctor 16591* (IJ); Old England Trail, alt. 4,250 ft., *C.D. Adams 12532* (UCWI); St. Andrew, summit of John Crow Peak, alt. 5,500-5,750 ft., *G.R. Proctor 9536* (IJ, AMES); above Cinchona, alt. 1600 m, *J.G. Hawkes 2276* (K); Fairy Glade, alt. 1340-1380 m, 13 Nov. 1985, *C. & J. Luer, H.P. & A. Jesup 11489* (MO); St. Thomas, Blue Mountain Peak to Portland Gap, alt. 6,500-7,400 ft., *M.R. Crosby, H.A. Hespenheide & W.R. Anderson 925* (DUKE); "Ellen Aire," Moy Hall, 14 Sept. 1887, *F.C. Sullivan s.n.* (BM).

Lepanthes pulchella is endemic in the Blue Mountains of the eastern part of the island where it is relatively common. It is characterized by the congested, distichous inflorescence shorter than the little, broadly elliptical leaf; narrowly ovate,

denticulate sepals with long, attenuated apices; transversely bilobed petals with obliquely truncate apices; and a bilaminate lip, the blades of which surround the column, and with a minute, pubescent appendix.

Lepanthes quadrata Fawc. & Rendle, Trans. Linn. Soc. London, Bot. ser. 2, 7: 7, 1904.

Ety.: From the Latin *quatratus*, "quadrate," referring to the shape of the lip.

Plant small, epiphytic, caespitose; roots slender. Ramicauls erect, slender, 15-20 mm long, enclosed by 3-4 minutely ciliate, lepanthiform sheaths. **Leaf** erect, coriaceous, elliptical, acute, 11-18 mm long, 6-7 mm wide, the base cuneate into a petiole 1 mm long. **Inflorescence** a congested, distichous, successively several-flowered raceme up to 3 mm long, borne behind the leaf by a filiform peduncle 2-3 mm long; floral bracts echinate, 1 mm long; pedicels 1.5 mm long; ovary 1 mm long; **sepals** red-purple, denticulate, the dorsal sepal concave, broadly ovate, obtuse, abruptly acuminate, 3.5 mm long, 2 mm wide, connate to the lateral sepals for 0.75 mm, the lateral sepals oblique, acute, acuminate, 3.5 mm long, 1.5 mm wide, connate 0.75 mm; **petals** red-purple, minutely pubescent, transversely bilobed, 0.4 mm long, 2 mm wide, the upper lobe oblong-falcate, acute, the lower lobe slightly shorter, oblong-triangular, narrowly obtuse; **lip** purple, pubescent, subquadrate-trilobed, 5 mm long, 0.8 mm wide, the apex retuse, the basal angles produced into narrow processes 0.8 mm long, protruding above the column on either side, connate to the column above the base; **column** stout, 0.8 mm long, the anther and stigma apical.

JAMAICA: **Surrey**: Portland, near Mabess River, alt. 3,500 ft., 22 Feb. 1900, *W. Harris s.n.* (Lectotype: UCWI); near Mabess River, alt. 4,000 ft., 29 Apr. 1902, *W. Harris s.n.* (NY); 1.5 miles southwest of Ecclesdown, alt. 1,500-2,000 ft., *G.R. Proctor 9243* (IJ, AMES); St. Thomas, southern slopes of Gossamer Peak, alt. 750-900 m, *W.R. Maxon 9201* (AMES, BM, NY, US); Middlesex Co., Manchester, 0.5 mile northwest of Christiana, alt. 3,000 ft., *G.R. Proctor 18291* (IJ); St. Ann, Douglas Castle District, alt. 2,300 ft., *G.R. Proctor 26730* (IJ); Schwallenburgh property, northeastern slopes of Mt. Diablo, alt. 2,000-2,300 ft., *G.R. Proctor & R.A. Howard 15145* (IJ); south of Moneague, Mt. Diablo, alt. 850 m, 11 Nov. 1985, *C. & J. Luer, H.P. & A. Jesup 11477* (MO). **St. Catherine:** Hollymount, Mt. Diablo, alt. 750 m, *W.R. Maxon 2335* (AMES, US); site of "Blue Mountain," 2.5 miles south of Hollymount road, Mt. Diablo, alt. 2,800-2,900 ft., *H.A. & E.B. Hespenheide, J.S. Calver & R.E. Ricklefs 1416* (DUKE, PH).

Frequent and widely distributed in the humid, mountainous forests of the central and eastern parts of the island, *Lepanthes quadrata* varies in the size of habit and in the margins of the sepals. Most populations have sepals with denticulate margins, but the sepals of some populations are entire. It is identified by small, elliptical, leaves with short, congested, distichous racemes borne behind; usually denticulate, ovate, abruptly acuminate sepals; narrow, transversely bilobed petals; and a subquadrate lip with the basal angles produced into erect, narrow processes.

Lepanthes rotundata Griseb., Fl. Brit. W. Ind. 610, 1864.

Ety.: From the Latin *rotundatus*, "round," referring to the sepals.

Syn.: *Lepanthes concolor* Fawc. & Rendle, Trans. Linn. Soc. London, Bot. ser. 2, 7: 5, 1904.
Ety.: From the Latin *concolor*, "of one color," referring to the flowers.

Plant small, epiphytic, caespitose; roots slender. Ramicauls erect, slender, 5-20 mm long, enclosed by 2-5 microscopically ciliate-scabrous, lepanthiform sheaths. **Leaf** erect, coriaceous, elliptical, obtuse, 8-13 mm long, 6-10 mm wide, the base broadly cuneate into a petiole 1 mm long. **Inflorescence** a congested, distichous, successively several-flowered raceme up to 5 mm long, borne behind the leaf by a filiform peduncle 5-7 mm long; floral bracts 1.5 mm long; pedicels 1.5-2 mm long; ovary 0.75 mm long; **sepals** yellow, microscopically denticulate, the dorsal sepal broadly ovate to suborbicular, obtuse, concave, 3.5 mm long, 3.25 mm wide, connate to the lateral sepals for 0.5 mm, the lateral sepals broadly ovate, acute, 3.5 mm long, 2 mm wide, connate 1 mm; **petals** yellow, transversely bilobed, cellular-glandular, 1.4 mm long, 1.4 mm wide, the lobes obliquely triangular, acute, about equal in size and shape; **lip** yellow, cellular-glandular, transversely pandurate-bilobed, the lobes semiorbicular, encircling the column, 1.2 mm long, 1.75 mm broad, the transverse apex minutely apiculate, the base connate to the base of the column; **column** 1 mm long, the anther dorsal, the stigma apical.

JAMAICA: without locality, *Macfadyen s.n.* (Holotype: GOET: Isotype: K). **Surrey**: Newhaven Gap, alt. 5,600 ft., 10 Feb. 1910, *W. Harris s.n.* (BM, lectotype of *L. concolor*); Portland, Rose Hill, alt. 4,000 ft., 30 Oct. 1902, *W. Harris s.n.* (NY); 1.5-2.5 miles southwest of Ecclesdown, alt. 1,500-2,500 ft., *G.R. Proctor 10482* (IJ); St. Andrew, summit of John Crow Peak, alt. 5500-5,700 ft., *G.R. Proctor 9531* (IJ,

AMES); SE slopes of Mt, Telegraph, alt. 3,800-4,000 ft., 21 June 1984, *G.R. Proctor 40515* (SJ); Mt. Horeb, alt. 4,500 ft., *C.D. Adams 6261* (UCWI); Fairy Glade, alt. 1340-1380 m, 13 Nov. 1985, *C. & J. Luer, H.P. & A. Jesup 11486* (MO); St. Thomas, Maccasucker Bump, alt. 825-1025 m, *W.R. Maxon 9594* (BM, NY, US); Portland Gap tp Blue Mountain Peak, alt. 6,500-7,400 ft., *M.R. Crosby, H.A. Hespenheide & W.R. Anderson 850* (DUKE).

Common at higher elevations in the Blue Mountains and the John Crow Mountains of the eastern part of the island, *Lepanthes rotundata* is characterized by a congested raceme shorter than the elliptical leaf; broad sepals; broadly forked petals; and a transversely pandurate lip that surrounds the column. The sepals are microscopically denticulate, which can be overlooked without proper magnification.

Lepanthes sanguinea Hook., Curtis's Bot. Mag. t. 4112, 1844.

Ety.: From the Latin *sanguineus*, "blood-red," referring to the color of the flowers.

Plant very small, epiphytic, caespitose; roots slender. Ramicauls suberect, slender, 5-7 mm long, enclosed by 2-3 loose, minutely ciliate, lepanthiform sheaths. **Leaf** erect, coriaceous, elliptical, subacute to obtuse, 10-14 mm long, 6-9 mm wide, the base broadly cuneate into a petiole 1 mm long. **Inflorescence** a congested, distichous, successively several-flowered raceme up to 4 mm long, borne on top of the leaf by a filiform peduncle 2-3 mm long; floral bracts echinate, 0.75 mm long; pedicels 0.5 mm long; ovary 0.5 mm long; **sepals** light purple, denticulate, ovate, subacute, the dorsal sepal 3.75 mm long, 2.75 mm wide, connate to the lateral sepals for 0.75 mm, the lateral sepals oblique, 3.25 mm long, 1.8 mm wide, connate 1 mm; **petals** dark purple, transversely bilobed, pubescent, 0.9 mm long, 2.75 mm wide, the lobes subequal, oblong, the upper lobe subtruncate, the apex of the lower lobe rounded; **lip** dark purple, pubescent, bilaminate, the blades elliptical, 1.2 mm long, with ends rounded, the connectives broadly oblong, the body broad, connate to the base of the column, with a stout, long-pubescent appendix in the sinus; **column** 1 mm long, the anther apical, the stigma ventral.

JAMAICA: without locality, *W.J. Hooker s.n.* (Holotype: t. 4112, Bot. Mag.).
Middlesex: Manchester, 0.5 mile northwest of Christiana, alt. 3,000 ft., *G.R. Proctor 11077* (IJ); St. Ann, 0.1 mile north of Hollymount, Mt. Diablo, alt. 2,700-2,800 ft., *H.A. & E.B. Hespenheide, J.S. Calver & R.E. Ricklefs 864* (DUKE). **St. Catherine**: site of "Blue Mountain," 2.5 miles south of Hollymount road, Mt. Diablo, alt. 2,800-2,900 ft., *H.A. & E.B. Hespenheide, J.S. Calver & R.E. Ricklefs 1420* (DUKE, PH). **Surrey**: Portland, Mabess River, alt. 2,500 ft., *G.E. Nichols 152* (AMES, K, NY, US); Silver Hill, alt. 3,500 ft., *C.D. Adams 11928* (UCWI); St. Thomas, southeastern slopes of Stone Hole Bump, alt. 600-800 m, *W.R. Maxon 9025* (AMES, US). without locality, flowered in cultivation by H.P. Jesup in Bristol, CT., 26 Apr. 1987, *C. Luer A12876* (MO).

This minute species is uncommon, but widely distributed in the humid forests of the central and eastern parts of the island. An illustration was published in 1844 by W.J. Hooker in Curtis's Botanical Magazine, but apparently no herbarium specimen was prepared. A very similar species from eastern Puerto Rico, previously identified as *Lepanthes sanguinea* Hook., has been described as *L. caritensis* Tremblay & Ackerman.

Lepanthes sanguinea is characterized by a short, congested inflorescence borne on top of a little, elliptical leaf; proportionately large, purple flowers with denticulate sepals; transversely bilobed, pubescent petals; and a bilaminate lip with elliptical, pubescent blades and a stout, long-pubescent appendix.

Lepanthes simplex Hespenh., Proc. Acad. Nat. Sci. Philadelphia 120: 6, 1968.

Ety.: From the Latin *simplex*, "simple," in reference to the lip.

Plant small, epiphytic, caespitose; roots slender. Ramicauls erect, slender, 2-4 cm long, enclosed by 4-6 microscopically scabrous, lepanthiform sheaths. **Leaf** erect, thickly coriaceous, suffused with purple beneath, narrowly elliptical, acute, 10-22 mm long, 4-8 mm wide, up to 3 mm thick, the base cuneate into a petiole 1 mm long. **Inflorescence** a congested, distichous, successively several-flowered raceme up to 12 mm long, borne on top of the leaf by a filiform peduncle 2-3 mm long; floral bracts echinate, 0.75 mm long; pedicels 0.4 mm long; ovary 0.8 mm long; **sepals** light purple to yellow, entire, ovate, acute, the dorsal sepal concave, 2.5 mm long, 1.4 mm wide, connate to the lateral sepals for 0.25 mm, the lateral sepals 2.2 mm long, 1.2 mm wide, 1-veined, connate 0.5 mm,; **petals** auriculate, transversely bilobed, cellular glandular, 0.3 mm long, 0.6 mm wide, the lobes about equal, obliquely triangular, obtuse; **lip** entire, transversely oblong, cellular glandular, 0.3 mm long, 0.6 mm wide, connate to the base of the column, or a rudimentary column-foot; **column** 0.6 mm long, the anther and stigma apical.

JAMAICA: **Cornwall**: Trelawny, 4 miles westnorthwest of Troy on Crown Lands Road, alt. 2,200-2,400 ft., *H.A. & E.B. Hespenheide, J.S. Calver & R.E. Ricklefs 1184* (Holotype: PH; Isotypes: AMES, DUKE); 6 miles westnorthwest of Troy, alt. 2,000-2,200 ft., *H.A. & E.B. Hespenheide, J.S. Calver & R.E. Ricklefs 1260* (BM, DUKE, UCWI); near Mocho, collected by H.P. Jesup, flowered in cultivation in Bristol, CT., 26 Apr. 1987, *C. Luer A12878* (MO).

Known from only one area of seasonally dry, scrubby forest in the southeastern part of the Cockpit Country, *Lepanthes simplex* is recognized by a thick, narrowly elliptical leaf; short, congested racemes of minute flowers; ovate, acute sepals, the laterals one-veined; minute, auriculate petals; and a minute, entire, transversely oblong lip. The features of the petals and lip described in the original description are probably artifacts produced by rehydrating dried flowers.

Lepanthes tridentata (Sw.) Sw., Nova Acta Regiae Soc. Sci. Upsal. 6: 86, 1799.

Bas.: *Epidendrum tridentatum* Sw., Prod. Veg. Ind. Occ. 125, 1788.

Ety.: From the Latin *tridentatus*, "with three teeth," possibly referring to the tips of the leaves.

Plant small, epiphytic, caespitose; roots slender. Ramicauls erect, slender, 15-20 mm long, enclosed by 4-5 microscopically scabrous, lepanthiform sheaths. **Leaf** erect, coriaceous, elliptical, subacute, 10-14 mm long, 7-9 mm wide, the base cuneate into a petiole 1 mm long. **Inflorescence** a congested, distichous, successively several-flowered raceme up to 5 mm long, borne on top of the leaf by a filiform peduncle 8-9 mm long; floral bracts 1 mm long; pedicels 1-1.25 mm long; ovary 0.8 mm long; **sepals** yellow, entire, narrowly ovate, acute, the dorsal sepal 3 mm long, 1.5 mm wide, connate to the lateral sepals for 0.25 mm, the lateral sepals oblique, 2.75 mm long, 1 mm wide, connate 1.5 mm; **petals** minutely-pubescent, transversely bilobed, 0.4 mm long, 1.4 mm wide, the lobes about equal in size and shape, obliquely triangular, narrowly obtuse; **lip** purple, glandular pubescent, bilobed, the lobes narrowly oblong, arcuate, obtuse, coursing along the upper margin of the column, each lobe 1 mm long, connate to the base of the column, the anterior margin with a minute, bilobed, ciliate appendix; **column** slender, arcuate, 1 mm long, the anther dorsal, the stigma subapical.

JAMAICA: **Surrey**: Blue Mountains, *Swartz s.n.* (Holotype: BM; Isotype C); Portland, below John Crow Peak, north side, alt. 5,200 ft., 29 Apr. 1902, *W. Harris s.n.* (BM, K); 0.5 mile north of Hardwar Gap, alt. 3,900 ft., *G.R. Proctor 10173* (IJ); St. Andrew, Cinchona to Newhaven Gap, *N.L. Britton 138* (AMES in part; NY); John Crow Peak, alt. 6,000 ft., *G.E. Nichols 52* (AMES, K, NY, US); Fairy Glade, alt. 1340-1380 m, 13 Nov. 1985, *C. & J. Luer, H.P. & A. Jesup 11487* (MO); St. Thomas, Blue Mountain Peak to Portland Gap, alt. 6,500-7,400 ft., *M.R. Crosby, H.A. Hespenheide & W.R. Anderson 852* (DUKE, UCWI); "Ellen Aire," Moy Hall, 14 Sept. 1887, *F.C. Sullivan s.n.* (UCWI).

Endemic and uncommon in the Blue Mountains of the eastern part of the island, *Lepanthes tridentata* is characterized by a congested, distichous inflorescence shorter than a little, elliptical leaf; narrowly ovate sepals; obliquely triangular lobes of the petals; and a bilobed lip, the lobes of which are narrowly oblong and arch along the narrow, arcuate column. The appendix is minute, bilobed, and ciliate.

Lepanthes tubuliflora Hespenh., Proc. Acad. Nat. Sci. Philadelphia 120: 6, 1968.

Ety.: From the Latin *tubuliflorus*, "with tubular flowers," in reference to the buds examined.

Syn.: *Lepanthes brownii* Hespenh., Notul. Nat. Acad. Nat. Sci. Philadelphia 426: 1, 1969.

Ety.: Named in honor of Henry E. Brown, Jr., of Perrine, Fl., who discovered this species.

Plant medium in size, epiphytic, caespitose; roots slender. Ramicauls erect, stout, 5-12 cm long, enclosed by 6-10 ciliate, lepanthiform sheaths. **Leaf** erect, coriaceous, narrowly elliptical, acute to subacute, 2.5-4 cm long, 8-15 mm wide, the base cuneate into a petiole 2-3 mm long. **Inflorescence** a congested, distichous, successively many-flowered raceme up to 1.8 cm long, borne erect beyond the leaf by a filiform peduncle 3-4 cm long; floral bracts ciliate-pubescent, 1.5-2 mm long; pedicels 2-3 mm long; ovary winged, 5 mm long; **sepals** yellow, glabrous, entire, narrowly ovate, acute, the dorsal sepal 8 mm long, 3 mm wide, 3-veined, connate to the lateral sepals for 1 mm, the lateral sepals 7 mm long, 2.75 mm wide, 3-veined, connate 2 mm; **petals** rose, cellular-pubescent, entire, subcordate or obtusely triangular with rounded basal angles and rounded apex, 3 mm long, 3.25 mm wide, 3-veined; **lip** dark rose, cellular pubescent, bilaminate, the blades oblong-ovate, 2 mm long, 1 mm wide, with the ends rounded, in apposition below the column, the connectives broad, the body broad, connate to the base of the column, the obtuse sinus with a pedunculate, ovoid, pubescent appendix; **column** 2 mm long with protruding rostellum, the anther apical, the stigma ventral.

JAMAICA: **Middlesex**: Mt. Diablo, alt. 850 m, 27 May 1906, *F. Shreve s.n.* (Holotype: NY), C. Luer illustr. 19040. **Cornwall**: St. James, just west of Mocho Crossroads, alt. 2,200-2,400 ft., Aug. 1967, *H.E. Brown s.n.* (holotype of *L. brownii*: PH); Mocho Crossroads, collected by H.P. & A. Jesup, 1979, flowered in cultivation in Bristol, CT., 26 Apr. 1987, *H.P. Jesup s.n.* (MO), C. Luer illustr. A12848.

Lepanthes tubuliflora was described by Hespenheide from a single collection with immature buds by Forrest Shreve in 1906. A proposed name written in pencil on the type sheet is *L. shrevei* Britton, *in ed.* The original description and illustration of *L. tubuliflora* were made from an opened bud, as were also the description and illustration produced herein.

Phillips Jesup called our attention to the similarities of the habit and floral morphology of *Lepanthes tubuliflora* to those of *L. brownii* Hespenh., and the fact that *L. tubuliflora* had never been seen again. The following year, similar plants from a distant locality at a much higher altitude were described as *L. brownii*. Detailed examination of the two collections indicate that they represent the same species. The different habitats of the two concepts suggest that the locality of the ancient collection by Shreve might be in error.

The habits of the two concepts are inseparable. Narrowly elliptical leaves are surpassed by an elomgated peduncle and a shorter, congested, successively flowered raceme. The sepals of mature, widely expanded flowers are narrowly ovate and acute, not denticulate. In the buds examined, they are much smaller and deeply connate, but of similar shape.

The petals are more or less obtusely triangular. In a bud, they were found broadly flabellate with radiating folds to fit the petal into the narrow space within the bud. The blades of the lip of a mature flower are fleshy, oblong with rounded ends, and indistinctly developed with broad connectives. The lip from the bud of *L. tubuliflora* is immature. The column, already well-devedloped in the bud, is terete with an elongated, protruding rostellum.

Lepanthes unguicularis Hespenh., Proc. Acad. Nat. Sci. Philadelphia 120: 7, 1968.

Ety.: From the Latin *unguicularis*, "unguiculate," referring to the clawed lip.

Plant small, epiphytic, caespitose; roots slender. Ramicauls erect, slender, 10-22 mm long, enclosed by 4-5 microscopically scabrous, lepanthiform sheaths. **Leaf** erect, coriaceous, elliptical, subacute, 12-27 mm long, 5-9 mm wide, the base cuneate into a petiole 2 mm long. **Inflorescence** a congested, distichous, successively several-flowered raceme up to 7 mm long, borne behind the leaf by a filiform peduncle 5-10 mm long; floral bracts 1 mm long; pedicels 1 mm long; ovary 0.5 mm long; **sepals** red with hyalin margins, entire, ovate, acute, shortly acuminate, the dorsal sepal concave, carinate, 3 mm long, 2 mm wide, connate to the lateral sepals for 0.5 mm, the lateral sepals 3 mm long, 1.5 mm wide, connate 0.5 mm; **petals** red, transversely bilobed, minutely ciliate-pubescent, 0.8 mm long, 1.8 mm wide, the lobes oblong-ovate, obtuse, the lower lobe larger, with a longitudinal elevation below which the surface is concave to accommodate the lobes of the lip; **lip** red, minutely ciliate, transversely subquadrate, convex, 1 mm long, 1.8 mm broad, with the acute apex revolute, and with the sides revolute to produce obtuse lateral angles adjacent to the lower lobes of the petals, the base unguiculate, connate to the base of the column; **column** 1 mm long, the anther dorsal, the stigma apical.

JAMAICA: **Cornwall**: St. James, 0.5 mile west of Mocho Crossroads, alt. 2200-2400 m, *H.A. & E.B. Hespenheide, J.S. Calver & R.E. Ricklefs 1672* (Holotype: PH; Isotypes: AMES, BM, DUKE, K, UCWI); Mocho Crossroads, alt. 690 m, 9 Nov. 1985, *C. & J. Luer, H.P. & A. Jesup 11461* (MO); White Rock Hill, 1 mile south of Sweet Water, alt. 2,000-2,200 ft., *G.R. Proctor 23179* (IJ).

Lepanthes unguicularis is locally abundant in the only area where it is known to occur in the seasonally dry, scrubby forest of the Cockpit Country. It is characterized by a small, elliptical leaf; a subequal, congested, inflorescence borne along the back surface; abruptly acuminate sepals; broadly bilobed petals with the lower lobes concave to accommodate the lobes of the lip; and a broad, entire, revolute lip attached to the base of the column by a claw.

Lepanthes vinacea Hespenh., Proc. Acad. Nat. Sci. Philadelphia 120: 12, 1968.

Ety.: From the Latin *vinaceus*, "wine-colored," referring to the color of the flower.

Plant small, epiphytic, caespitose; roots slender. Ramicauls erect, slender, 15-20 mm long, enclosed by 4-5 microscopically ciliate-scabrous, lepanthiform sheaths. **Leaf** erect, coriaceous, elliptical, subacute, 10-15 mm long, 5-9 mm wide, the base cuneate into a petiole 1 mm long. **Inflorescence** a congested, distichous, successively several-flowered raceme up to 5 mm long, borne behind the leaf by a filiform peduncle 5-7 mm long; floral bracts, 0.75 mm long; pedicels 0.75 mm long; ovary 0.75 mm long; **sepals** dark purple, entire, ovate, subacute to obtuse, the dorsal sepal 3.3 mm long, 2.3 mm wide, connate to the lateral sepals for 0.5 mm, the lateral sepals oblique, 3 mm long, 1.6 mm wide, connate 1.5 mm; **petals** dark purple, pubescent, transversely bilobed, 0.5 mm long, 3 mm wide, with a subacute angle on the outer margin between the lobes, the upper lobe narrowly oblong, obtuse, the lower lobe smaller, narrowly triangular, acute; **lip** dark purple, pubescent, bilobed, the lobes lunate-ovate, flanking the column, 1 mm long, the bases narrow, forming a very narrow body at the base of the lip, with a minute, oblong, pubescent appendix between the bases of the lobes; **column** slender, clavate, 1.5 mm long, the anther subapical, the stigma ventral.

JAMAICA: **Cornwall**: St. Thomas, upper, southern slopes and summit of Maccasucker Bump, alt. 825-1025 m, 25 June 1926, *W.R. Maxon 9595* (Holotype: US; Isotypes: AMES, BM, NY); St. Andrews, summit of John Crow Peak, alt. 5,500-5,750 ft., *G.R. Proctor 9534* (IJ). Without locality or collector, flowered in cultivation by H. Phillips Jesup in Bristol, CT., 26 Apr. 1987, *C. Luer A12872* (MO).

Known from only two localities in the humid forests of the Blue Mountains, this little species is characterized by an elliptical leaf; a shorter, congested inflorescence borne along the back side; dark purple flowers with ovate sepals; slender, pubescent, bilobed petals; and a pubescent, bilobed lip. The lobes of the lip are lunate, flanking the column, with the bases forming a very narrow body beneath the base of the column. A minute, pubescent appendix is present on the anterior margin of the body at the base of the column.

Lepanthes woodiana Fawc. & Rendle, J. Bot. 47: 6, 1909.

Ety.: Named in honor of Miss Helen A. Wood, illustrator for Fawcett and Rendle,

Plant small, epiphytic, caespitose; roots slender. Ramicauls erect, slender, 15-30 mm long, enclosed by 4-5 microscopically ciliate, lepanthiform sheaths. **Leaf** erect, coriaceous, elliptical, obtuse to subacute, 10-13 mm long, 6-10 mm wide, the base cuneate into a petiole 1 mm long. **Inflorescence** a congested, distichous, successively several-flowered raceme up to 5 mm long, borne on top of the leaf by a filiform peduncle 5-8 mm long; floral bracts slightly echinate, 0.75 mm long; pedicels 0.75 mm long; ovary 1 mm long; **sepals** yellow, entire, broadly ovate, obtuse, the dorsal sepal 1.5 mm long, 1.2 mm wide, connate to the lateral sepals for 0.25 mm, the lateral sepals oblique, 1.5 mm long, 0.8 mm wide, connate 0.8 mm; **petals** dark yellow, transversely bilobed, 0.5 mm long, 1 mm wide, the upper lobe obliquely triangular, acute, the lower lobe broadly ovate, rounded, slightly larger than the upper lobe; **lip** purple, cellular-glandular, bilaminate, the blades thick, oblong with the ends rounded, 0.5 mm long, flanking the column, the connectives oblong, thick, the body concave, connate to the base of the column, the anterior margin with a thick, pubescent, triangular appendix. connate to the base of the column, the anterior margin with a minute, bilobed, pubescent appendix; **column** stout, 0.5 mm long, the anther apical, the stigma ventral.

JAMAICA: **Middlesex**: St. Catherine, Hollymount, Mt. Diablo, alt. 2,600 ft., 17 Feb. 1905, *W. Harris s.n.* (Holotype: BM, photograph; Isotypes NY, UCWI); Mt. Diablo, alt. 2,700 ft., *W. Harris 9893, 9895b* (K, NY in part, UCWI; site of "Blue Mountain," 2.5 miles south of Hollymount road, Mt. Diablo, alt.

2,800-2,900 ft., *H.A. & E.B. Hespenheide, J.S. Calver & R.E. Ricklefs 1417* (DUKE, PH); St. Ann, 0.1 mile north of Hollymount, Mt. Diablo, alt. 2,700-2,800 ft., *H.A. & E.B. Hespenheide, J.S. Calver & R.E. Ricklefs 865* (DUKE); 1 mile on road to Resource, Mt. Diablo, alt. 2,500-2,700 ft., *H.A. & E.B. Hespenheide, J.S. Calver & R.E. Ricklefs 1058* (DUKE); Mt. Diablo, south of Moneague, alt. 850 m, *C. & J. Luer, H.P. & A. Jesup 11478* (MO).

Endemic in the region around Mt. Diablo in the central part of the island where it is frequent, *Lepanthes woodiana* is characterized by the congested, distichous inflorescence shorter than the elliptical leaf; broadly ovate sepals; bilobed petals with the upper lobe obliquely triangular and the lower lobe rounded; and a bilaminate lip, with the minute blades thick and flanking the column, and with a minute, bilobed, pubescent appendix.

Lepanthes wullschlaegelii Fawc. & Rendle, J. Bot. 47: 126, 1909.

Ety.: Named in honor of Heinrich Rudolph Wullschlägel, who discovered this species.

Plant medium in size, epiphytic, caespitose; roots slender. Ramicauls erect, slender, 2.5-8 cm long, enclosed by 6-9 microscopically ciliate, lepanthiform sheaths. **Leaf** erect, coriaceous, elliptical, subacute, slightly acuminate, 20-29 mm long, 9-18 mm wide, the base cuneate into a petiole 2 mm long. **Inflorescence** a congested, distichous, successively several-flowered raceme up to 10 mm long, borne on top of the leaf by a filiform peduncle 6-8 mm long; floral bracts 1.5 mm long; pedicels 1 mm long; ovary 1.5 mm long; **sepals** purple to yellow, entire, broadly ovate, obtuse, the dorsal sepal more or less reflexed over the ovary, 3 mm long, 2.75 mm wide, connate to the lateral sepals for 1 mm, the lateral sepals oblique, 2.5 mm long, 2 mm wide, connate 1 mm; **petals** orange, microscopically pubescent, transversely bilobed with lobes obliquely diverging, 1 mm long, 2.75 mm wide, the upper lobe obliquely triangular, acute, the lower lobe broadly ovate-triangular, obtuse, shorter than the upper lobe; **lip** red-purple, cellular-glandular, bilaminate, the blades broadly oblong, covering the column, 1.2 mm long, 0.6 mm wide, with the apices obtuse and the bases rounded, the connectives oblong, the body connate to the base of the column, with a sinus with a notched margin, the appendix oblong, long-pubescent, originating externally and protruding beneath the sinus; **column** stout, 1 mm long, the anther apical, the stigma ventral.

JAMAICA: "Beaufort," *H.R. Wullschlägel 1078* (Holotype: BM). **Cornwall**: St. James, 0.5 mile west of Mocho Crossroads, alt. 2,200-2,400 ft., *H.A. & E.B. Hespenheide, J.S. Calver & R.E. Ricklefs 1674* (DUKE); Mocho Crossroads, collected by H.P. & A. Jesup, 1979, flowered in cultivation in Bristol, CT, 26 Apr. 1987, *C. Luer A12847* (MO). White Rock Hill, 1 mile south of Sweet Water, alt. 2,000-2,200 ft., *G.R. Proctor 16155, 23027* (IJ); Trelawney, 2-3 miles north of Quickstep, alt. 1,300-1,500 ft., *H.A. & E.B. Hespenheide, J.S. Calver & R.E. Ricklefs 1668* (DUKE); Middlesex Co., Manchester, 0.5 mile north of Christiana, alt. 3,000 ft., *G.R. Proctor 18287* (IJ); Clarendon, Banana Ground to Sunbury, alt. 3,050 ft., *C.D. Adams 8434* (UCWI); St. Ann, 2.2 miles west of Albion, alt. 2,300-2,400 ft., *H.A. & E.B. Hespenheide, J.S. Calver & R.E. Ricklefs 961* (DUKE); 1 mile on road to Resource, Mt. Diablo, alt. 2,500-2,700 ft., *H.A. & E.B. Hespenheide, J.S. Calver & R.E. Ricklefs 1057* (DUKE); Mt. Diablo, collected by H. Brown before 1968, flowered in cultivation by H.P. Jesup, 10 Dec. 1988, *C. Luer 13779* (MO).

Found locally from the southern Cockpit Country to the area around Mt. Diablo near the center of the island, *Lepanthes wullschlaegelii* is characterized by a congested, distichous inflorescence shorter than the elliptical leaf; broadly ovate, obtuse sepals, the dorsal more or less reflexed; bilobed petals with the lobes obliquely triangular and diverging; and a bilaminate lip with well-developed, broadly oblong blades. The oblong appendix protrudes beneath a notched sinus.

Plants with combinations of morphological features among *Lepanthes wullschlaegelii, Lepanthes interiorubra* Hespenh., *L. woodiana* Fawc. & Rendle, and *L. hollymountensis* Luer & H.P.Jesup are not uncommon, making idebtifications often uncertain.

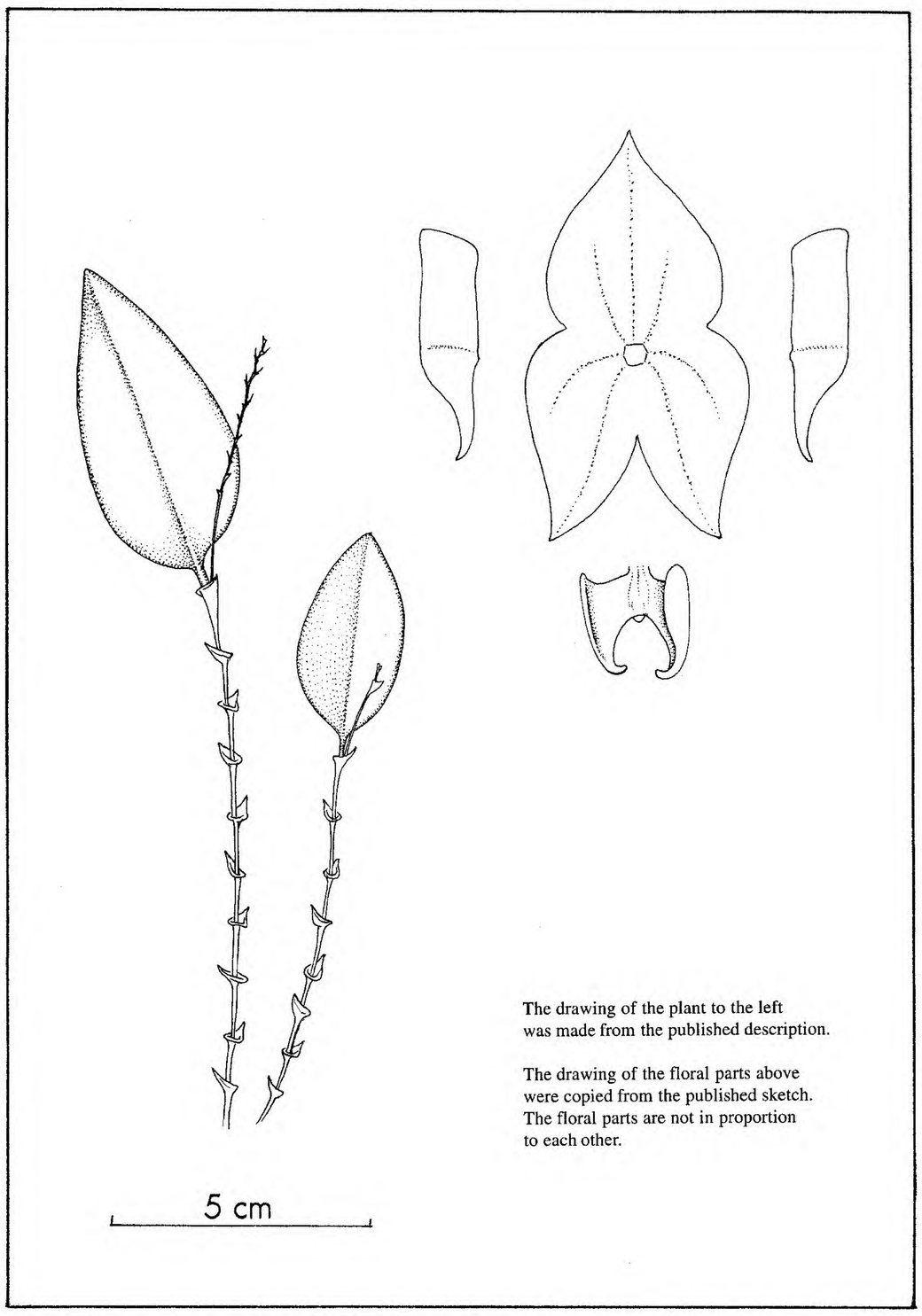


Fig. 1. Lepanthes adamsii

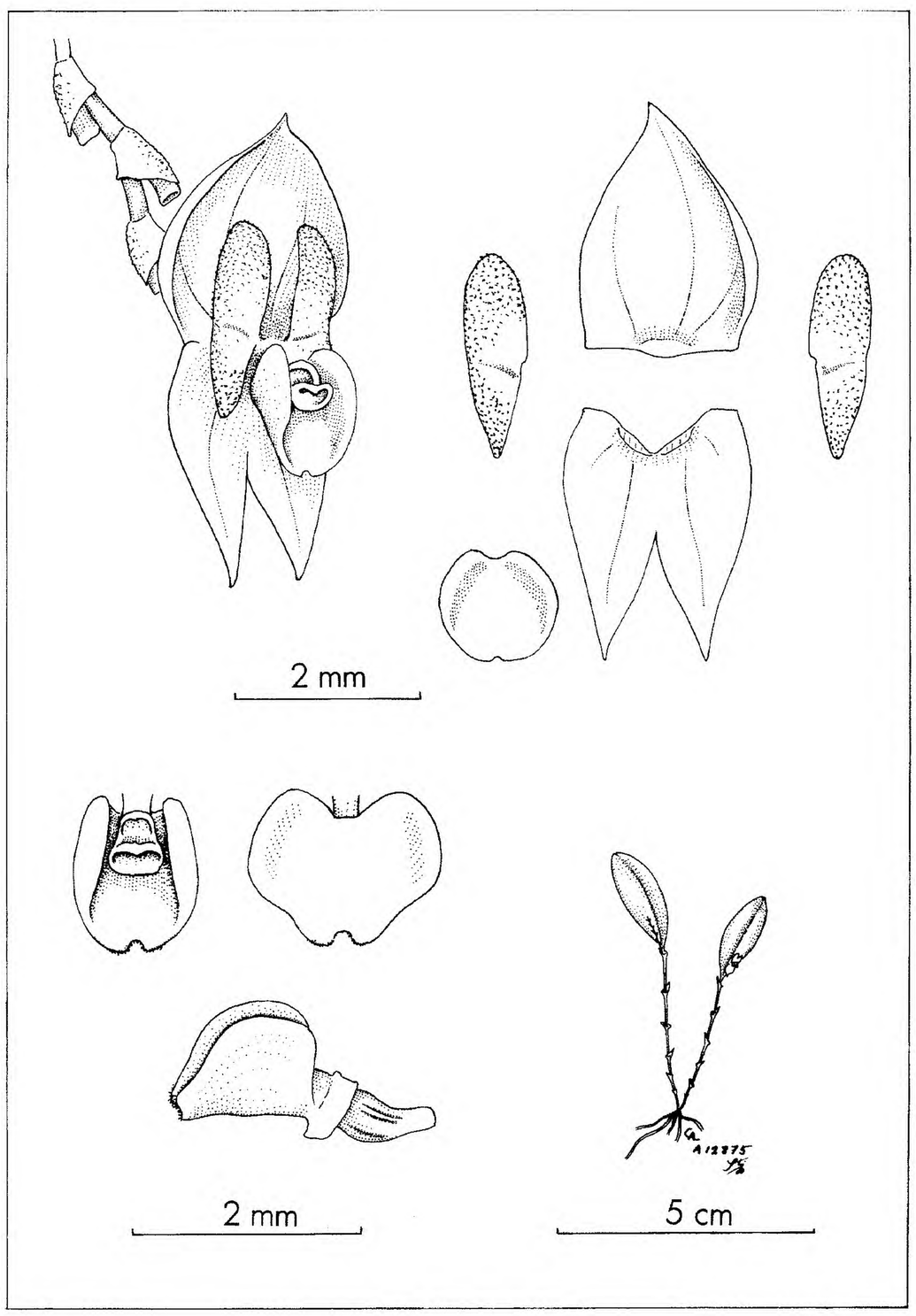


Fig. 2. Lepanthes bilabiata

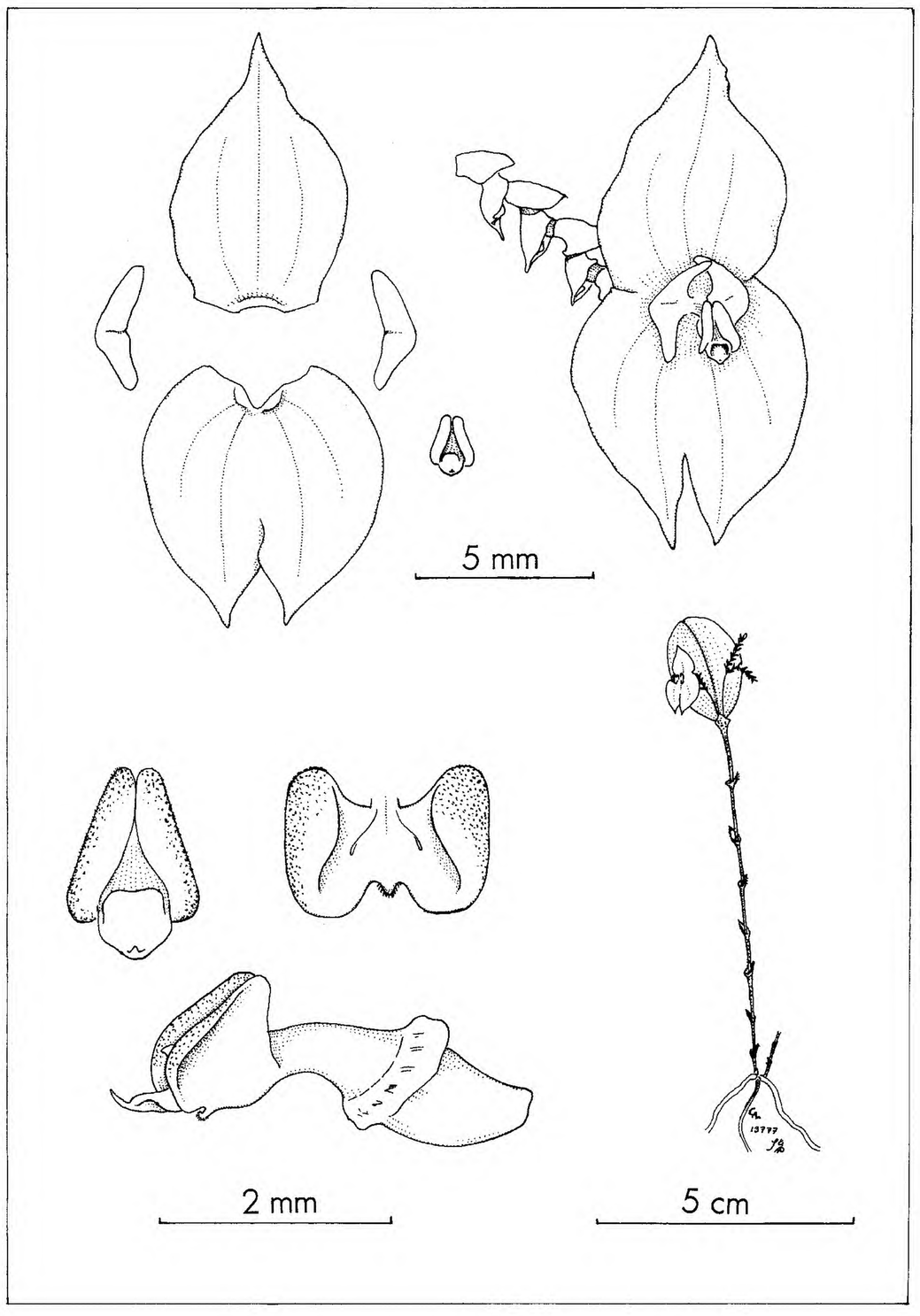


Fig. 3. Lepanthes byfieldii

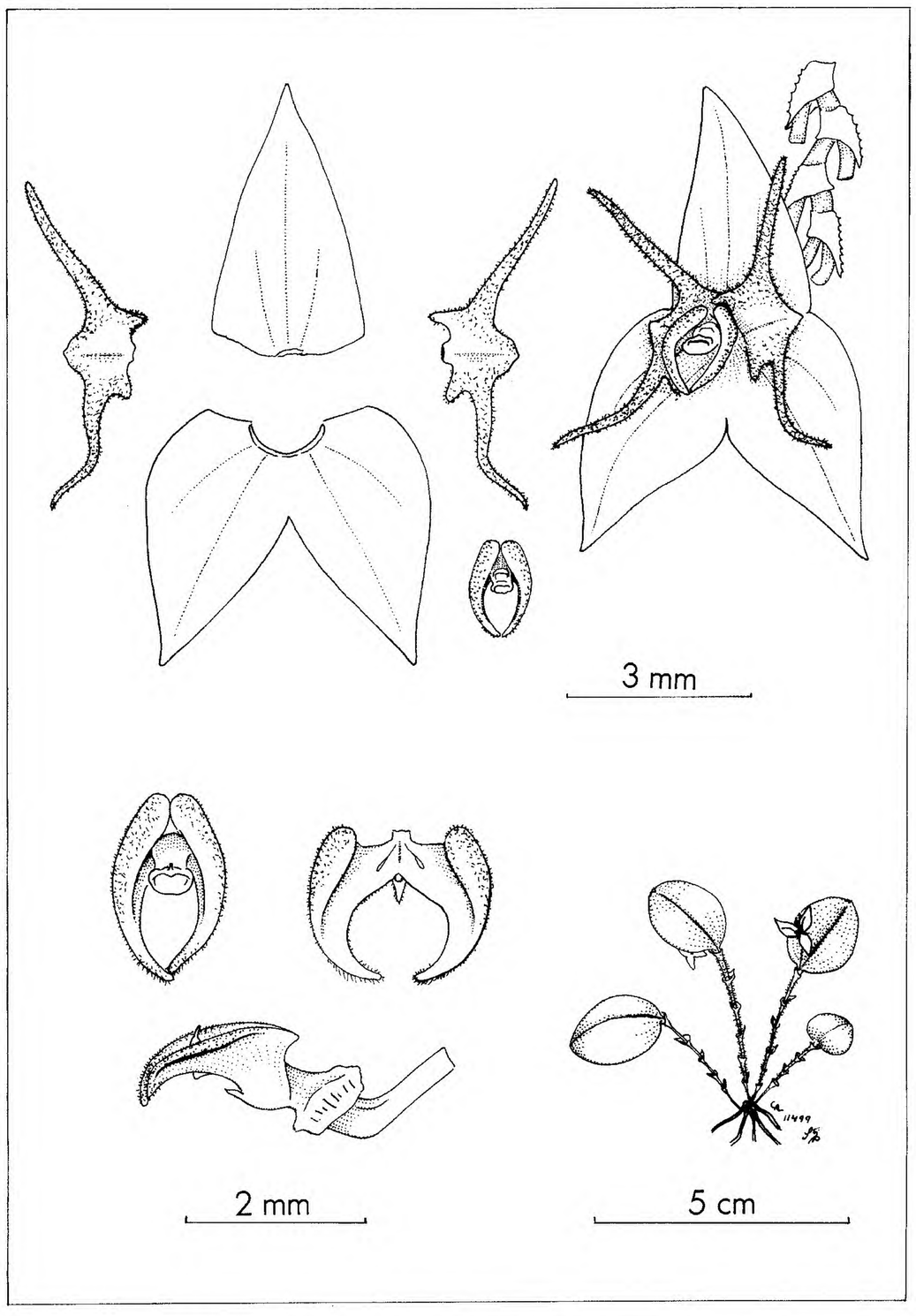


Fig. 4. Lepanthes cochlearifolia

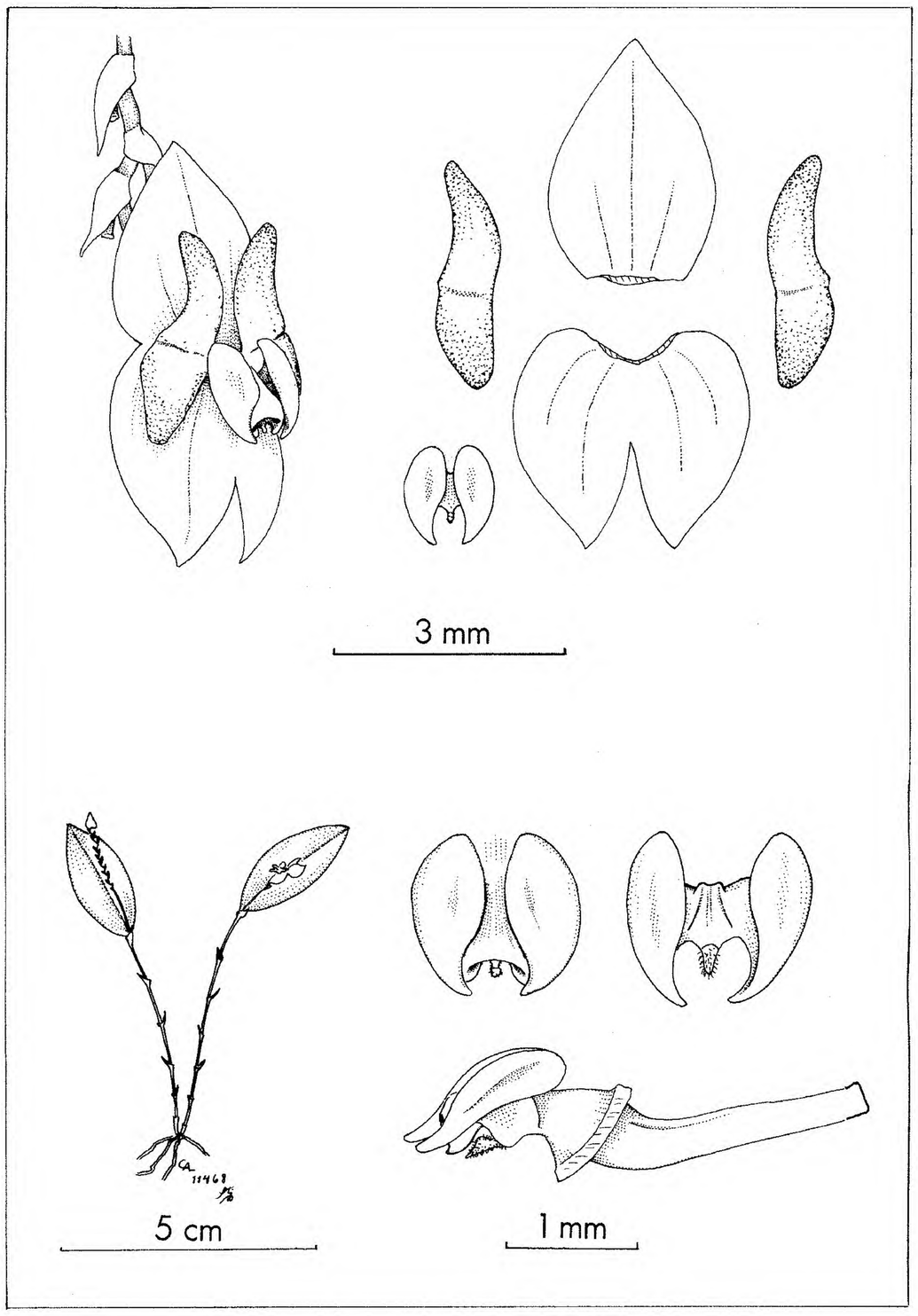


Fig. 5. Lepanthes convexa

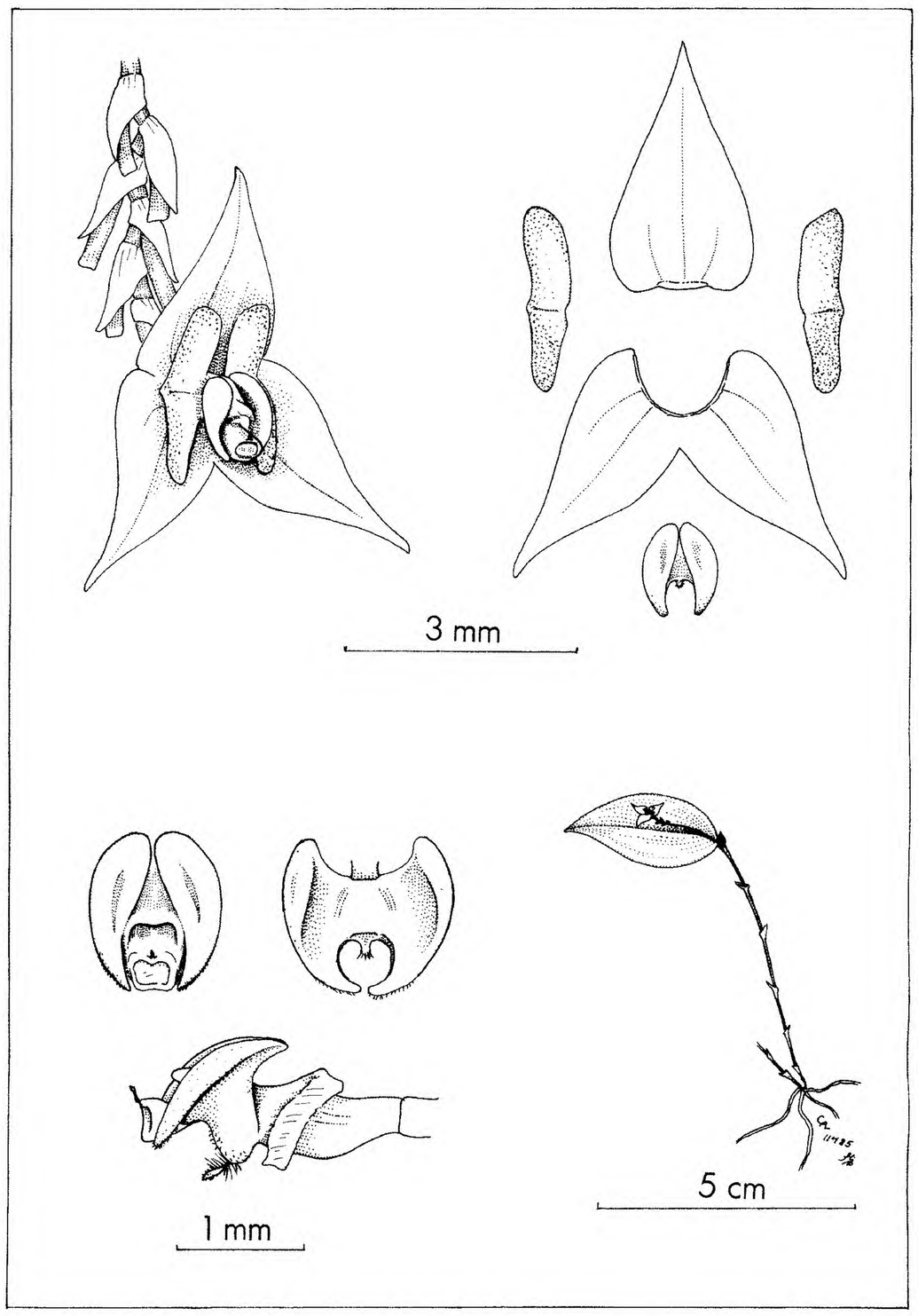


Fig. 6. Lepanthes divaricata

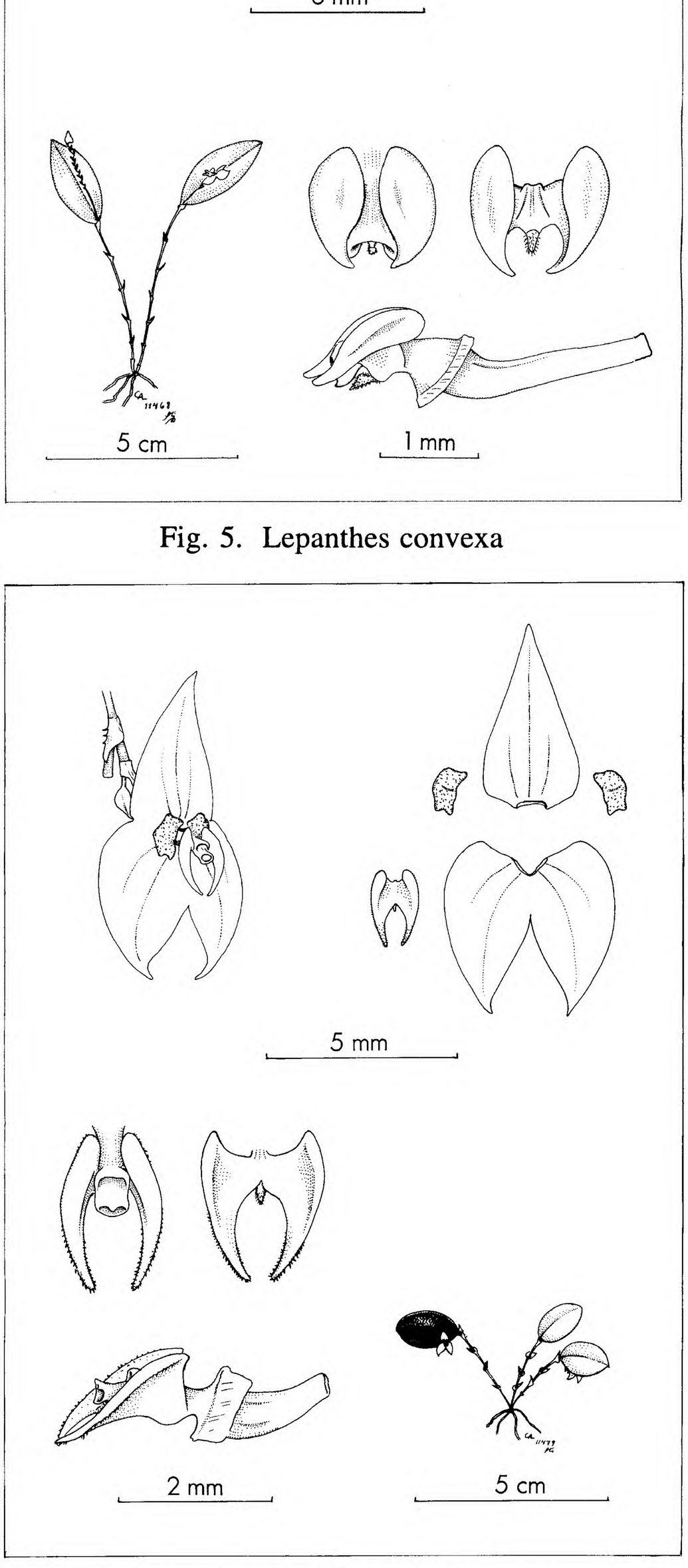


Fig. 7. Lepanthes elliptica

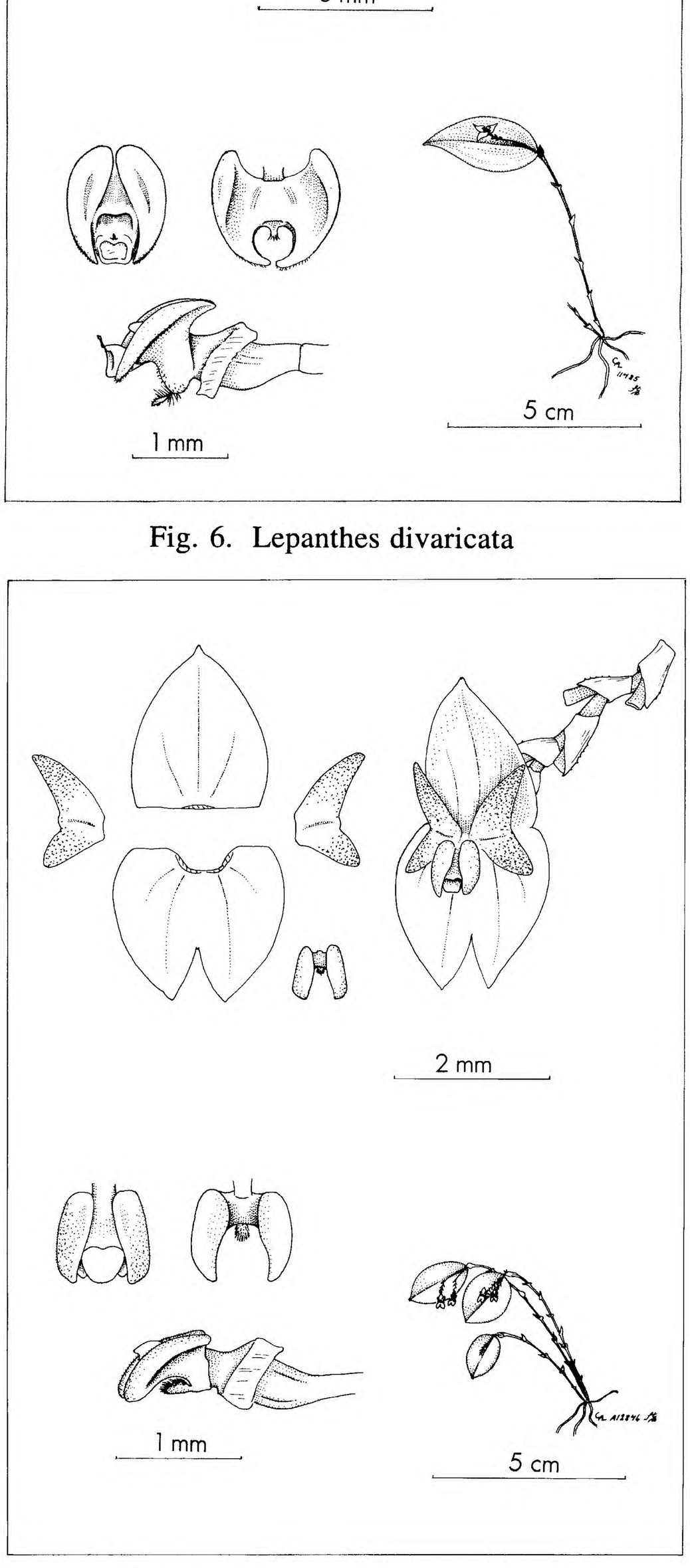
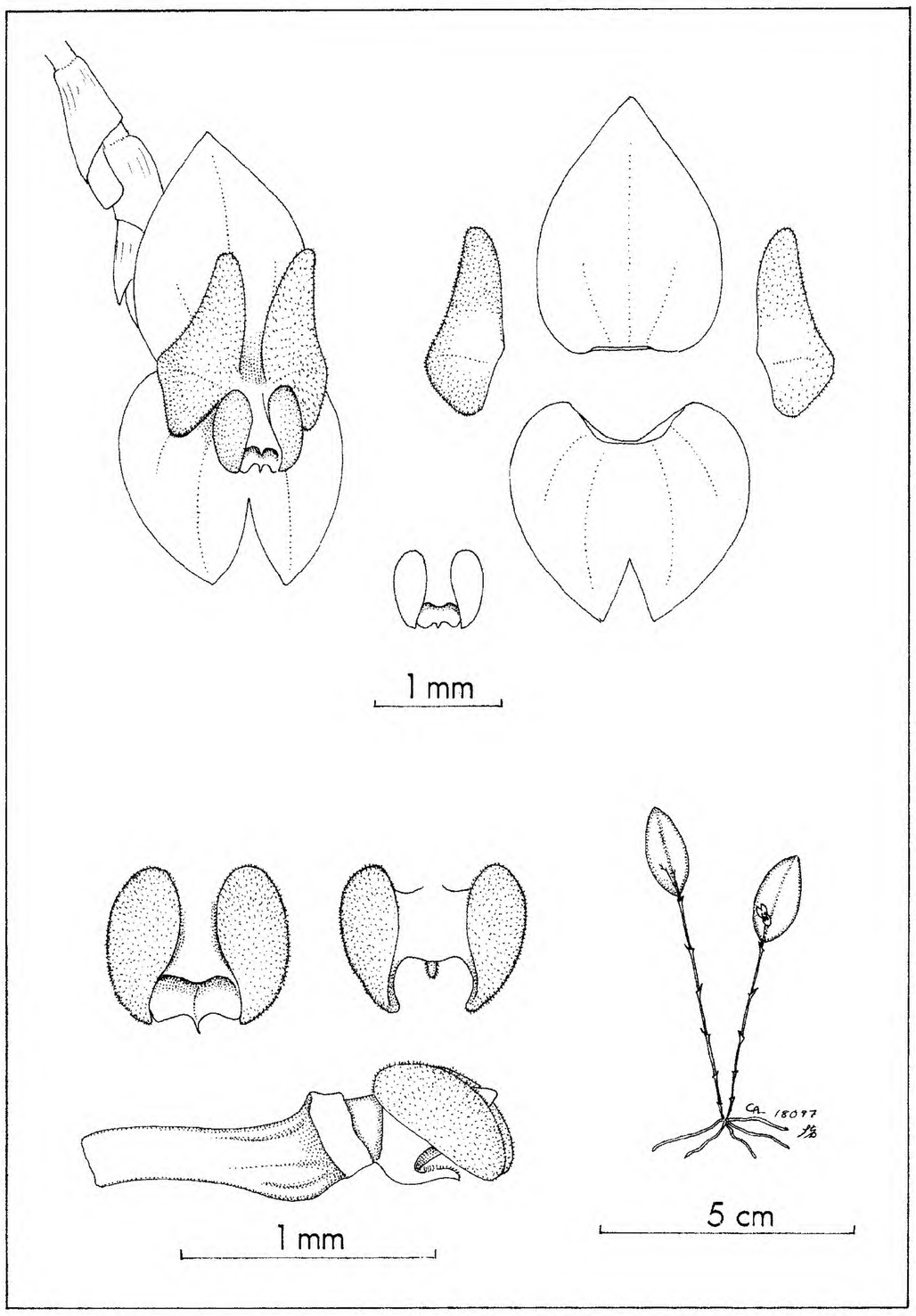


Fig. 8. Lepanthes hollymountensis



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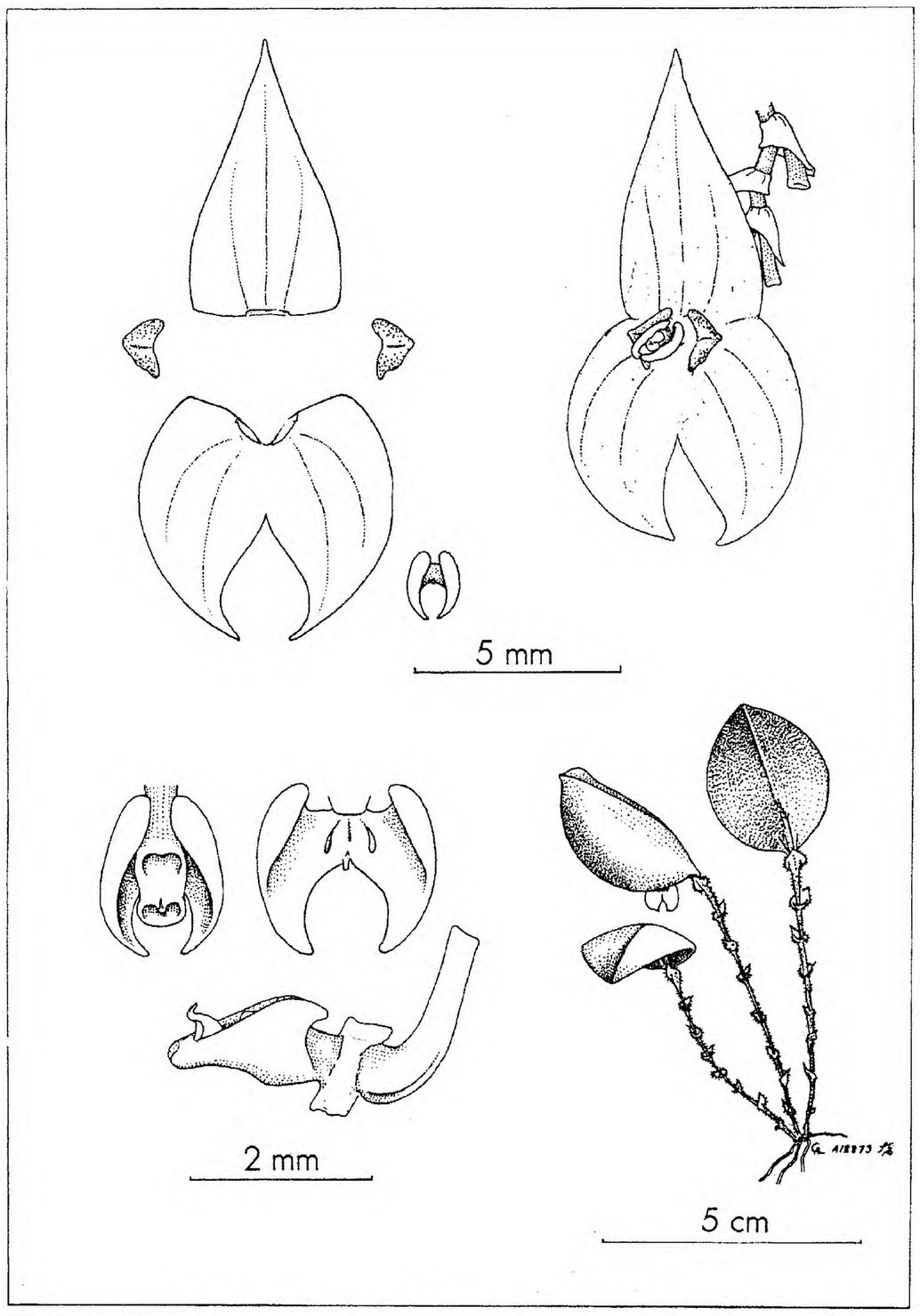

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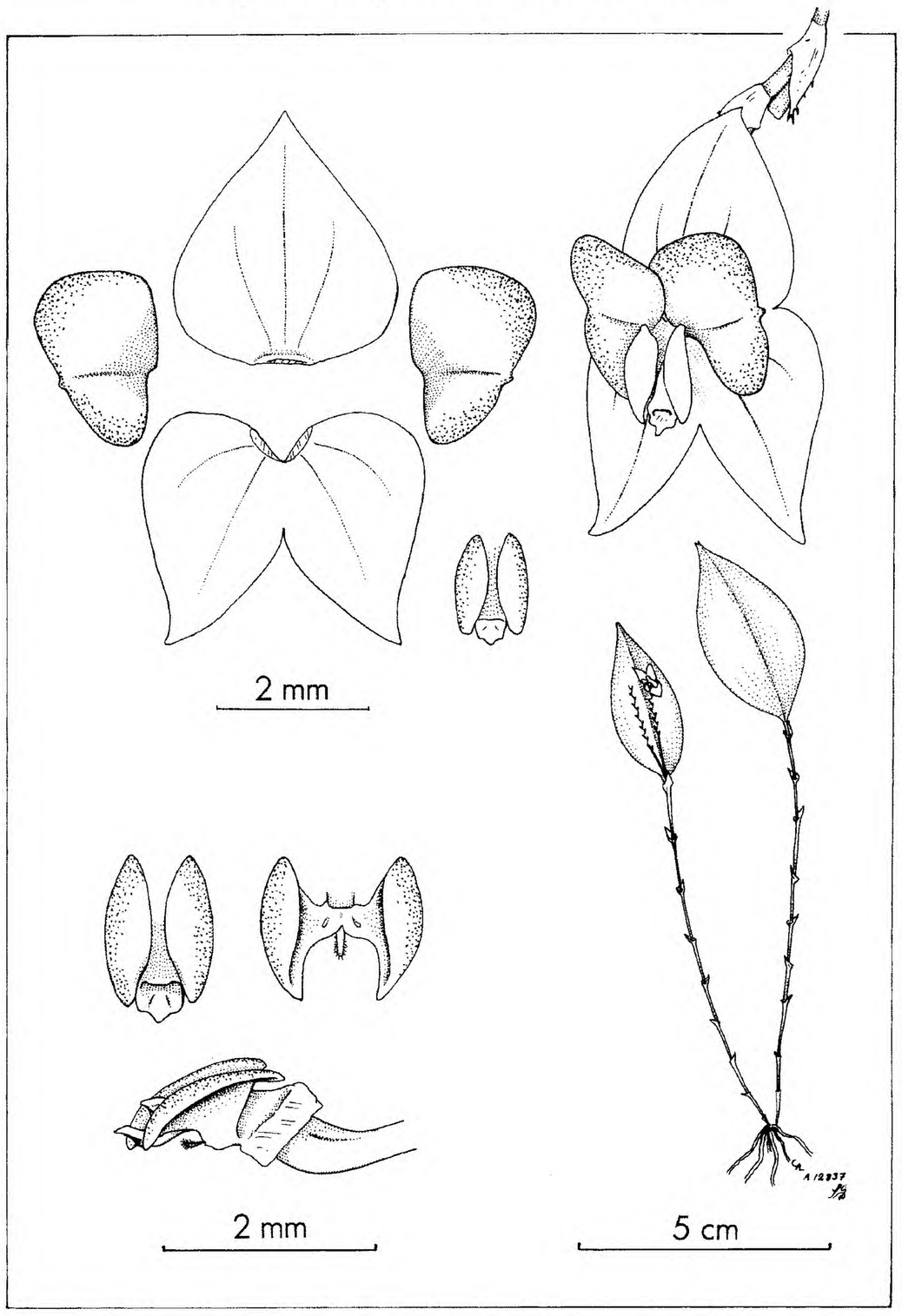

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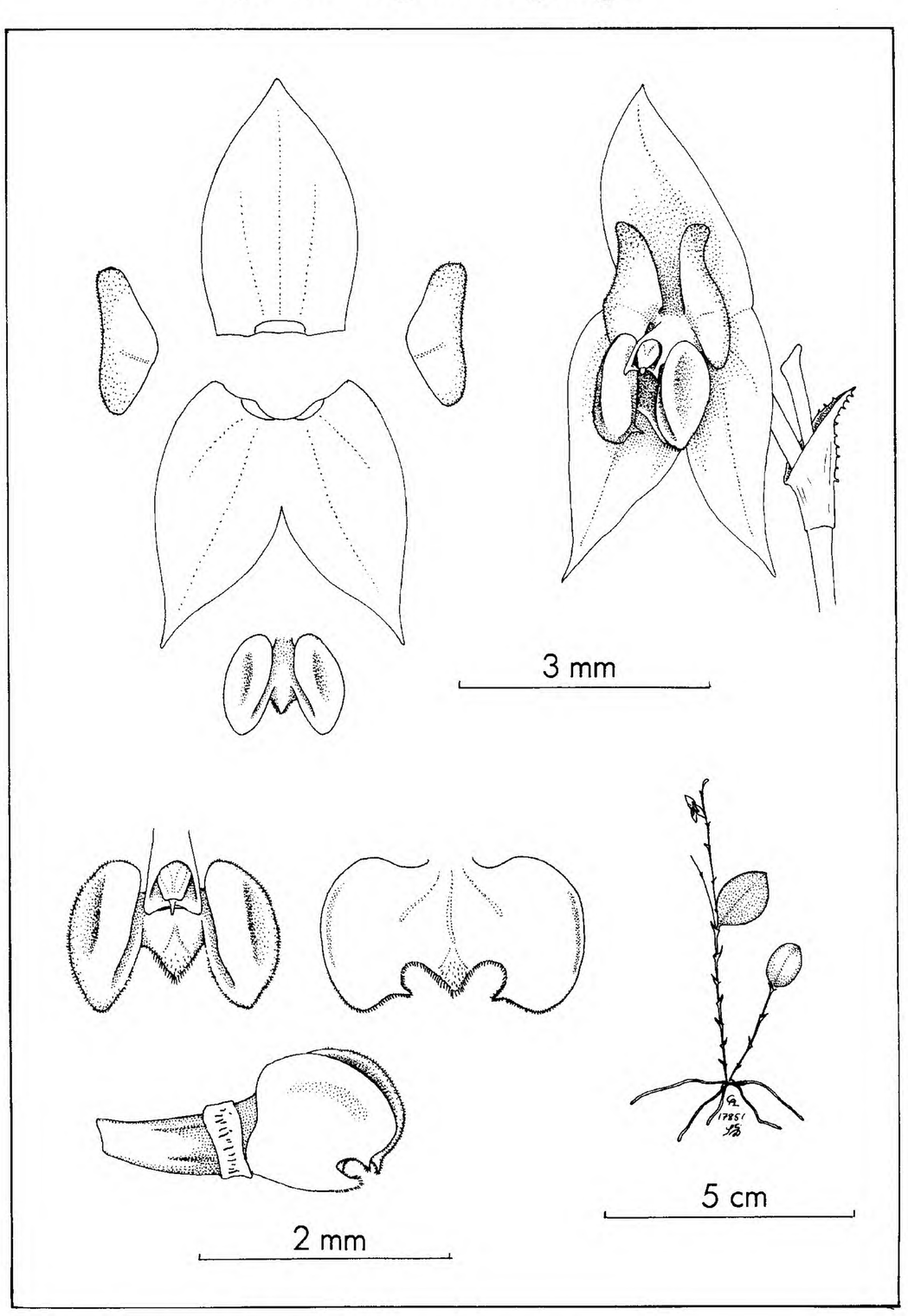

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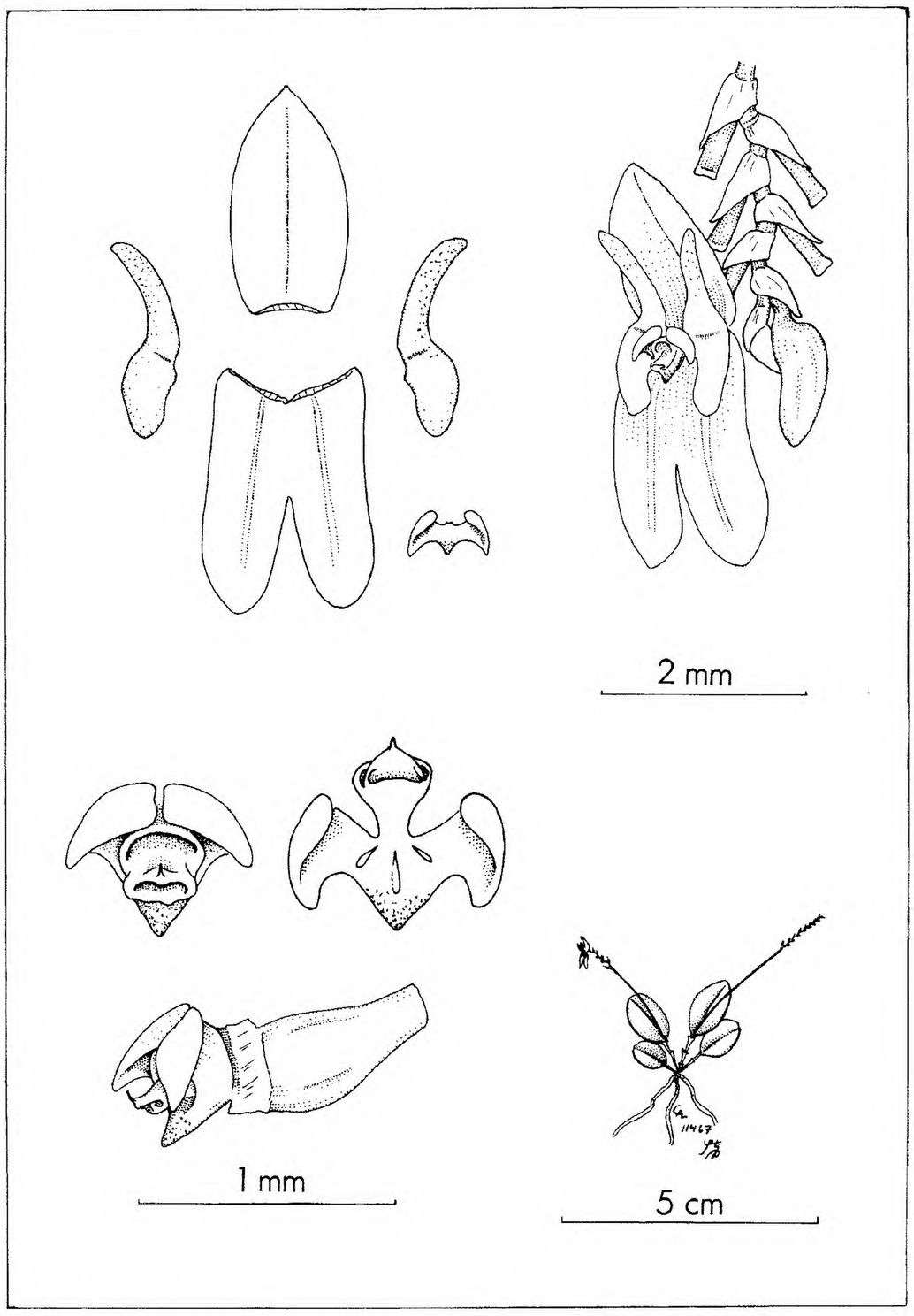

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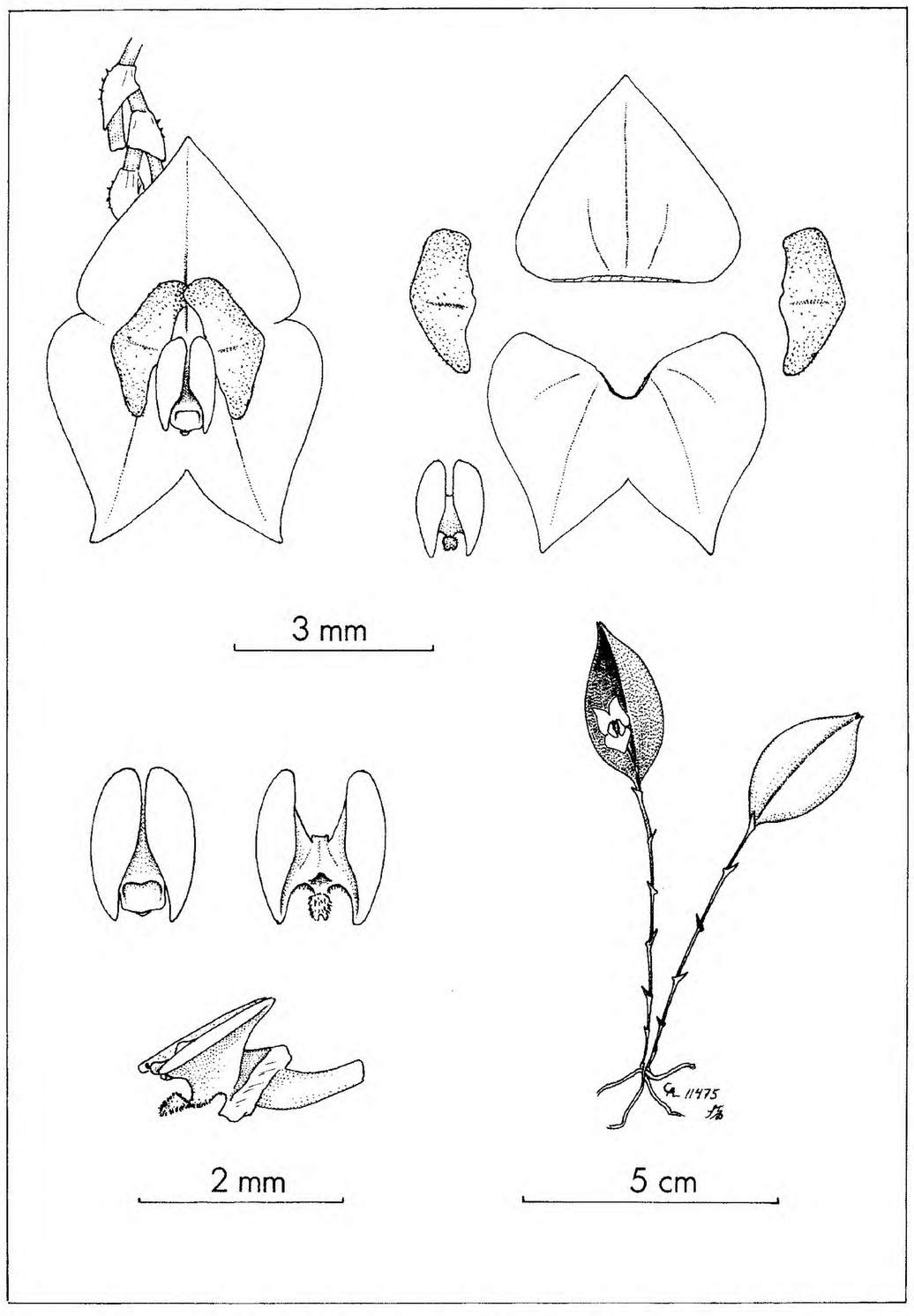

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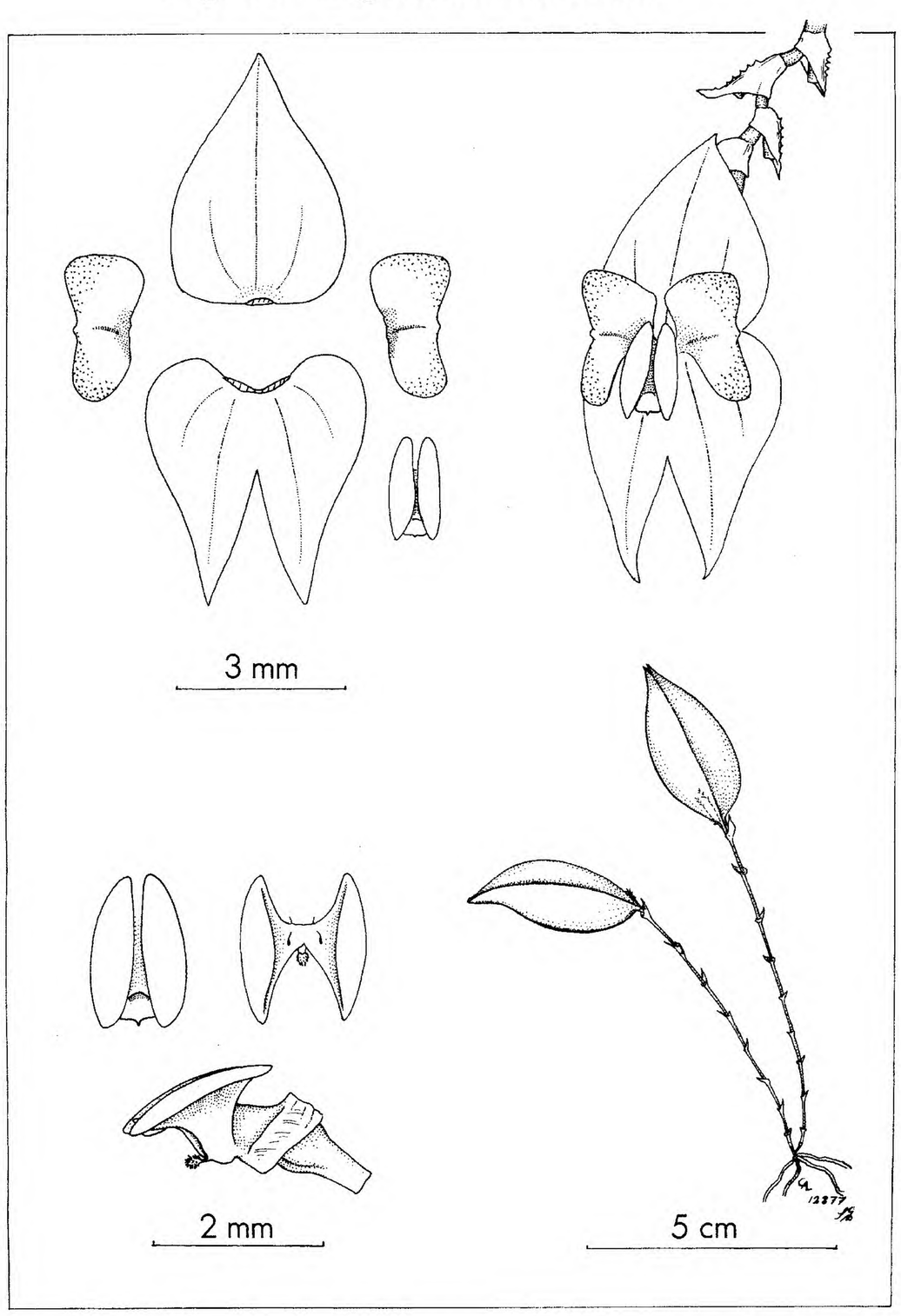

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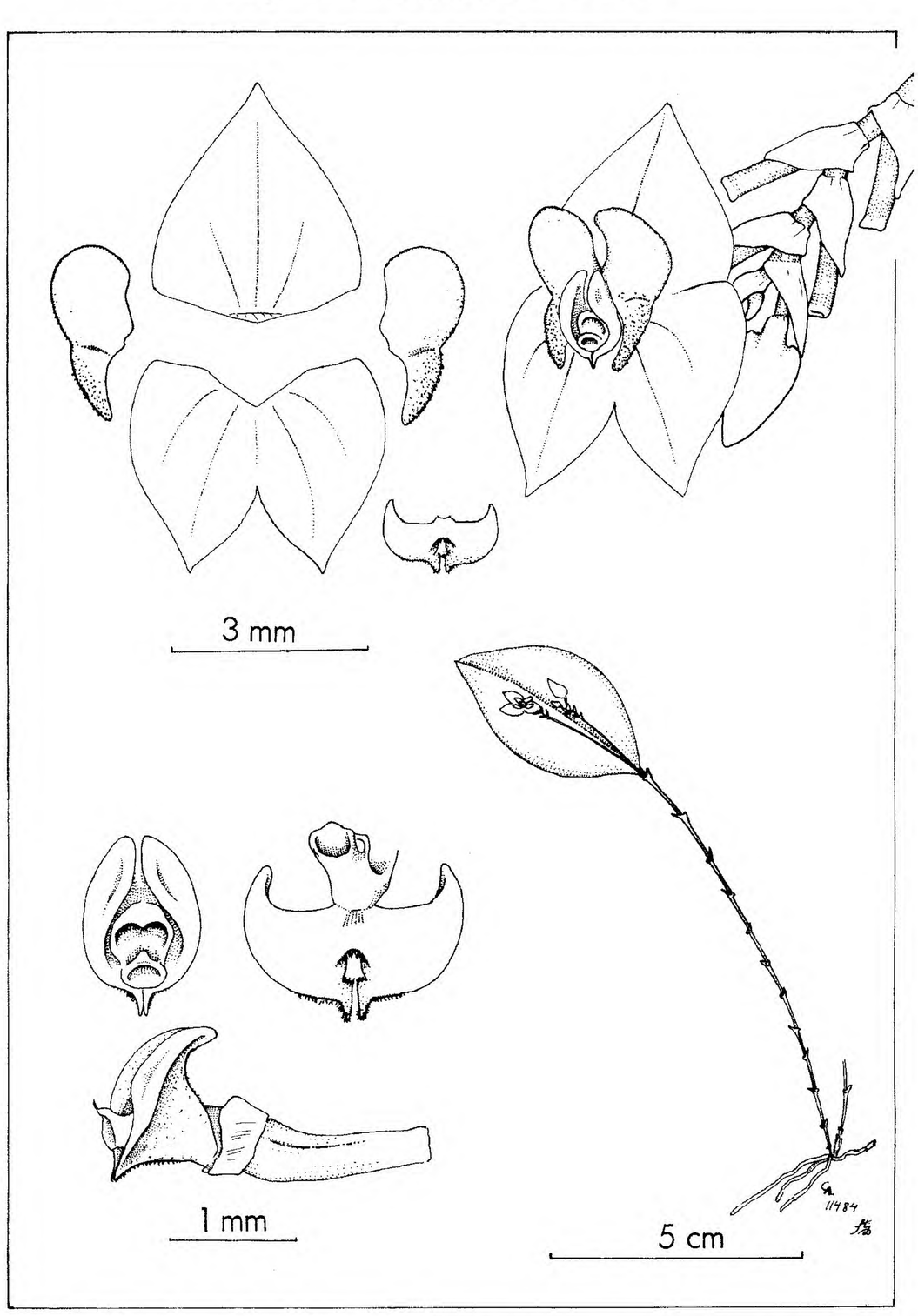

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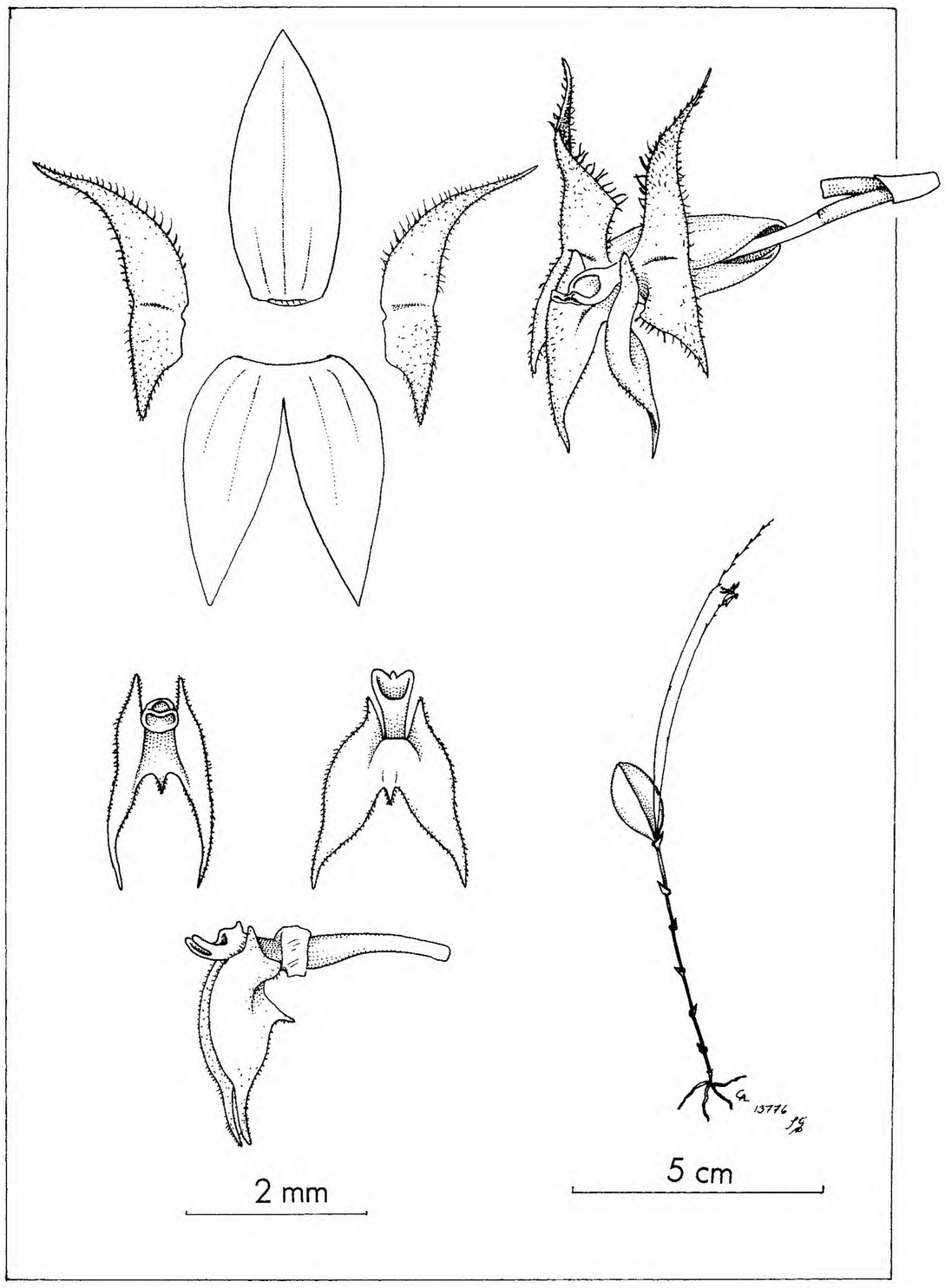

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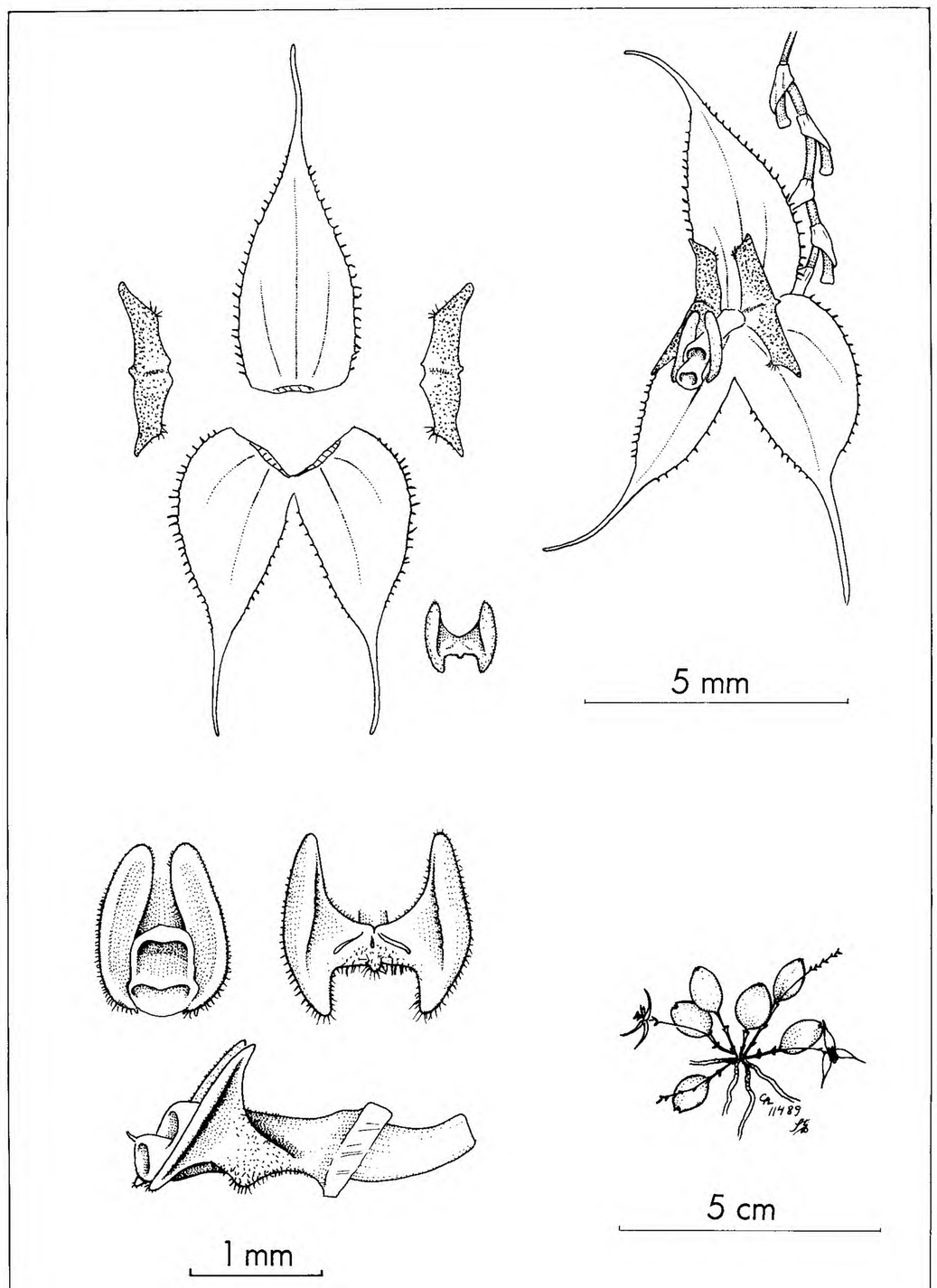

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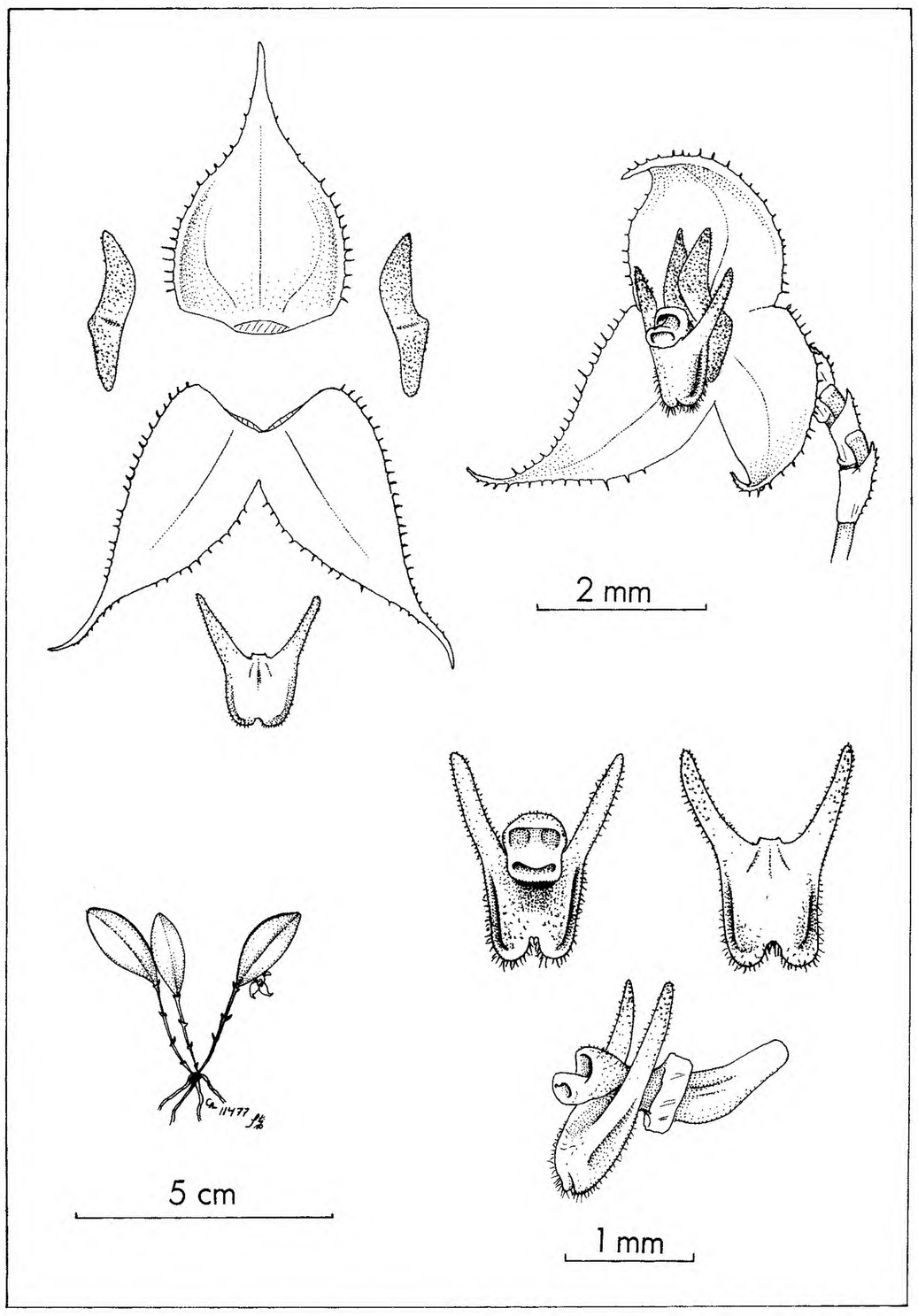

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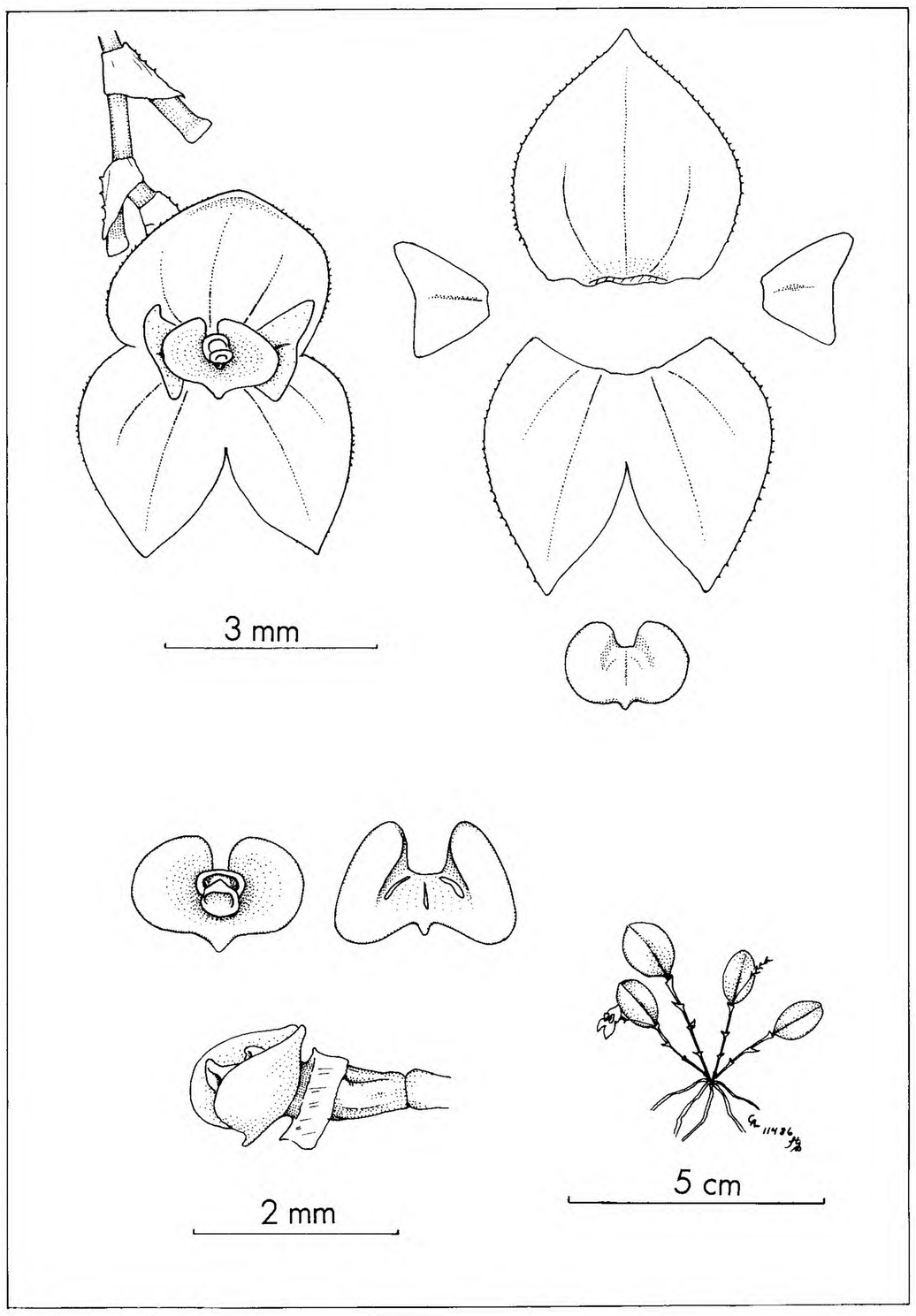

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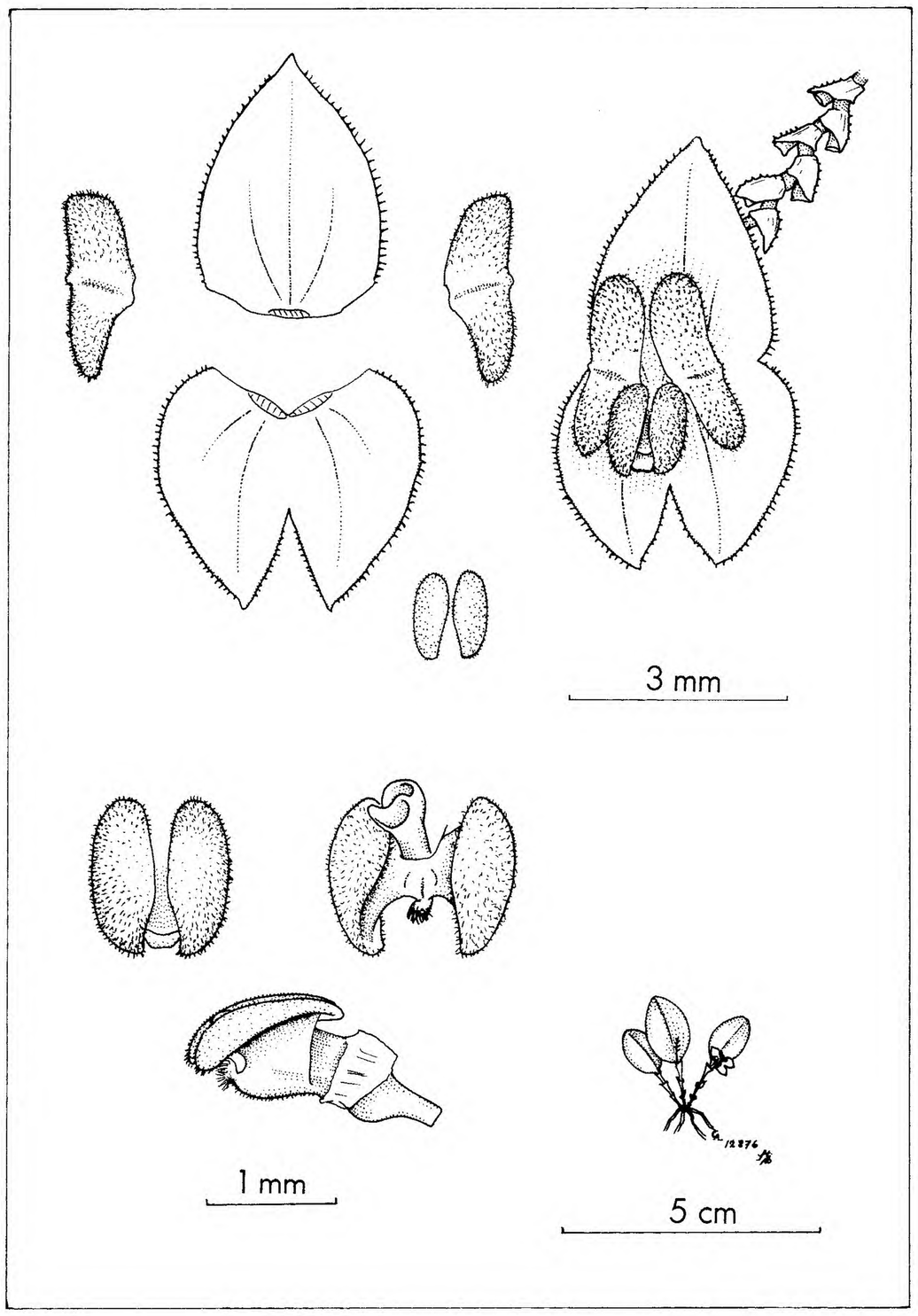

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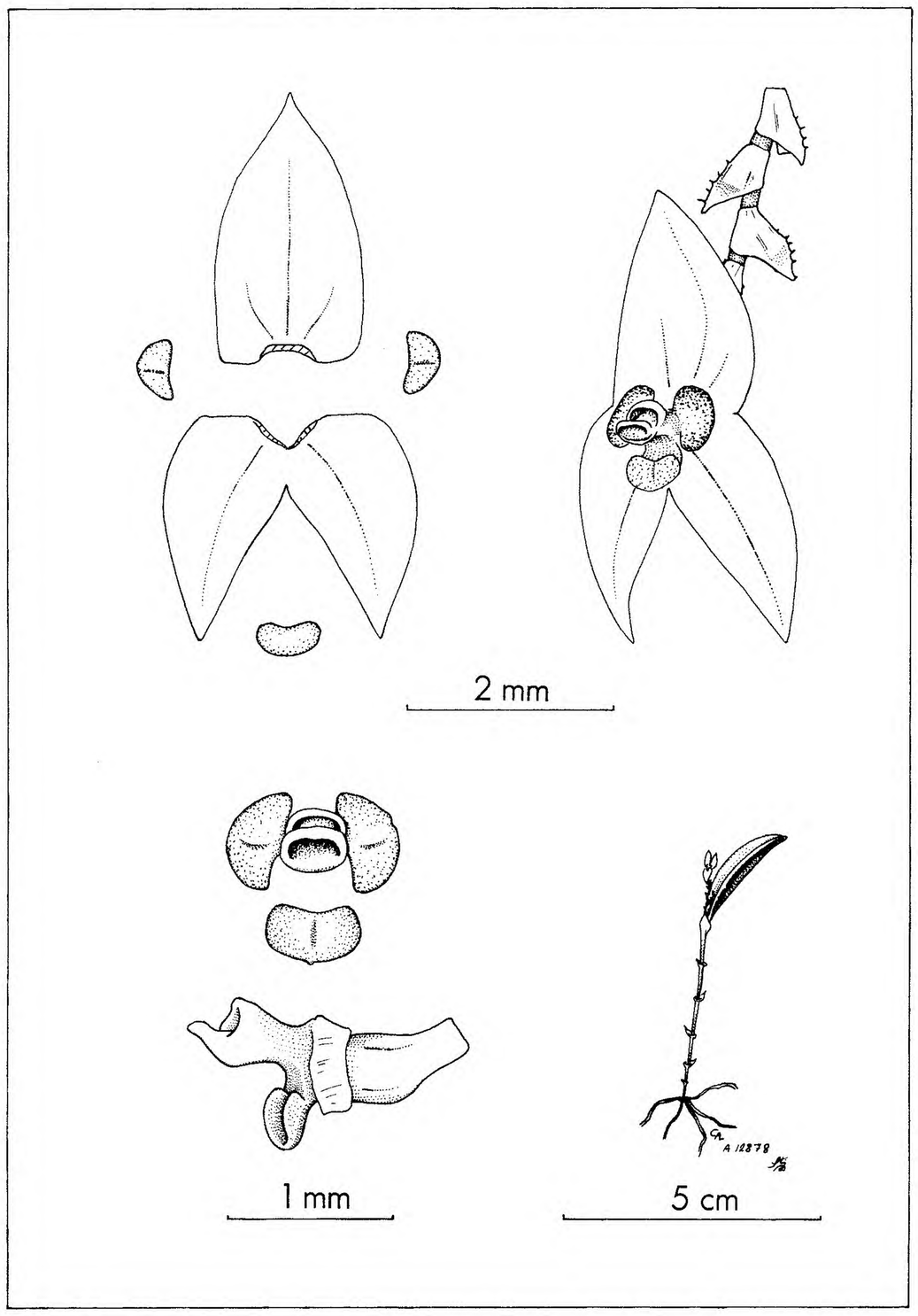

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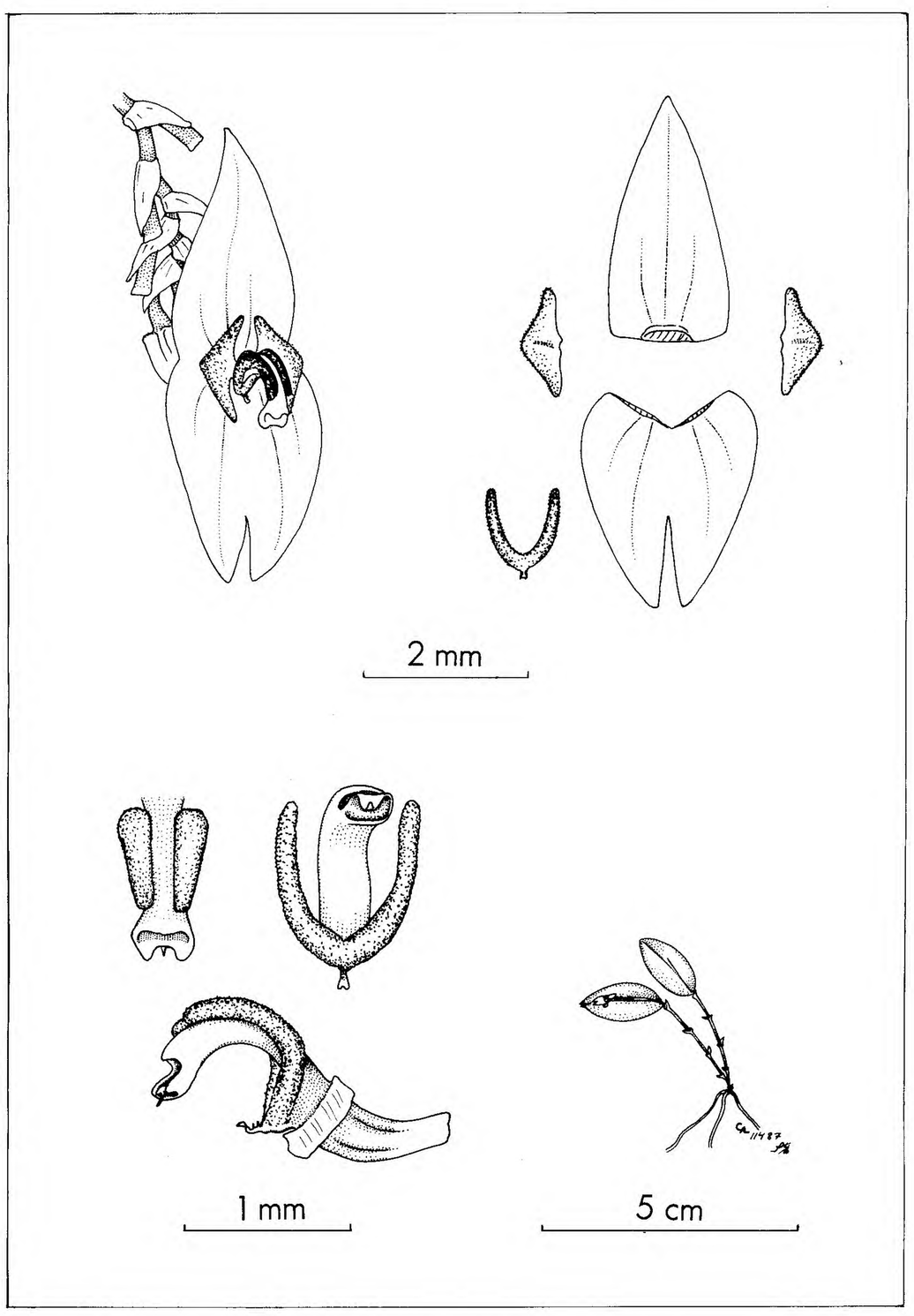

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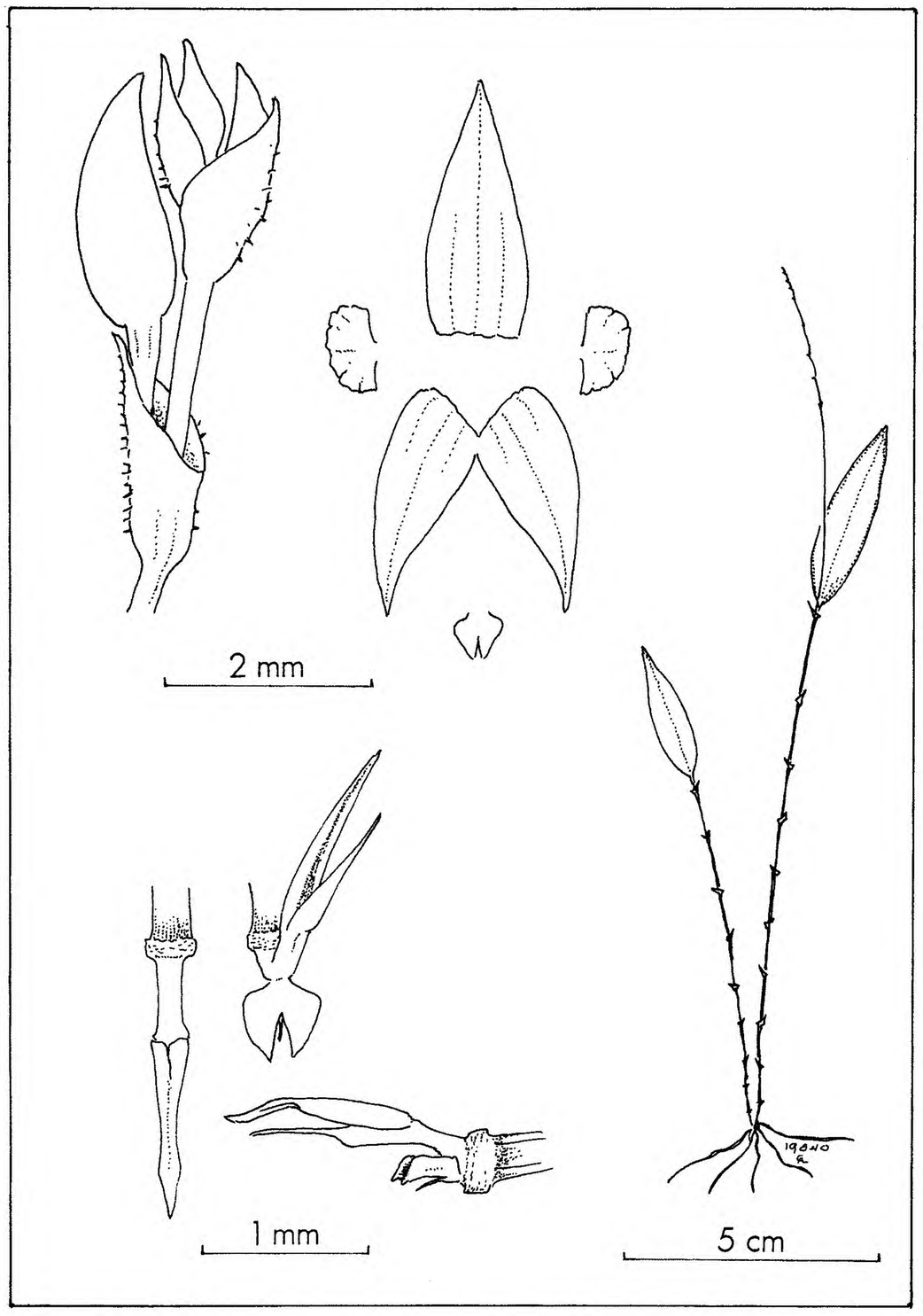
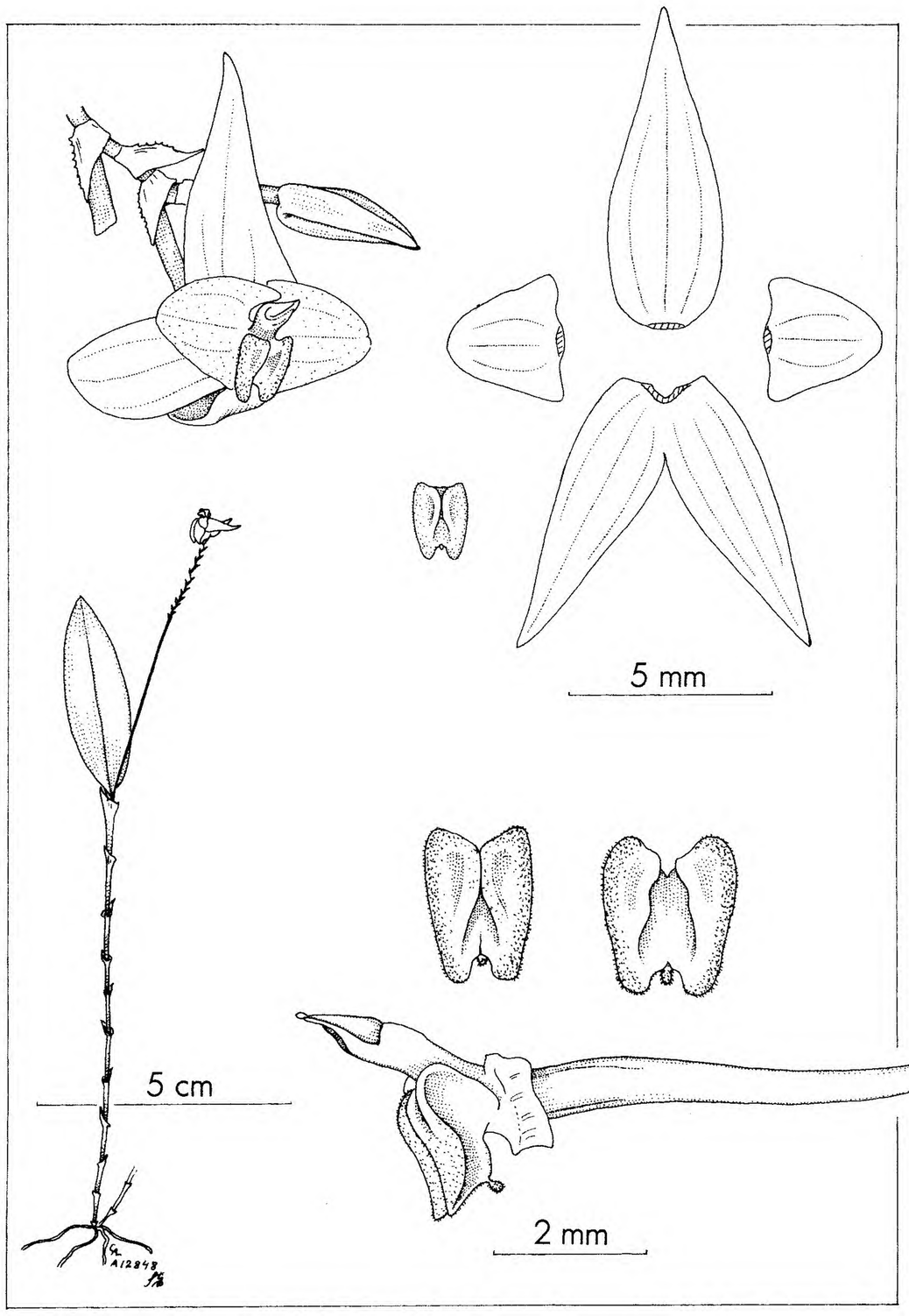


Fig. 24. Lepanthes tubuliflora



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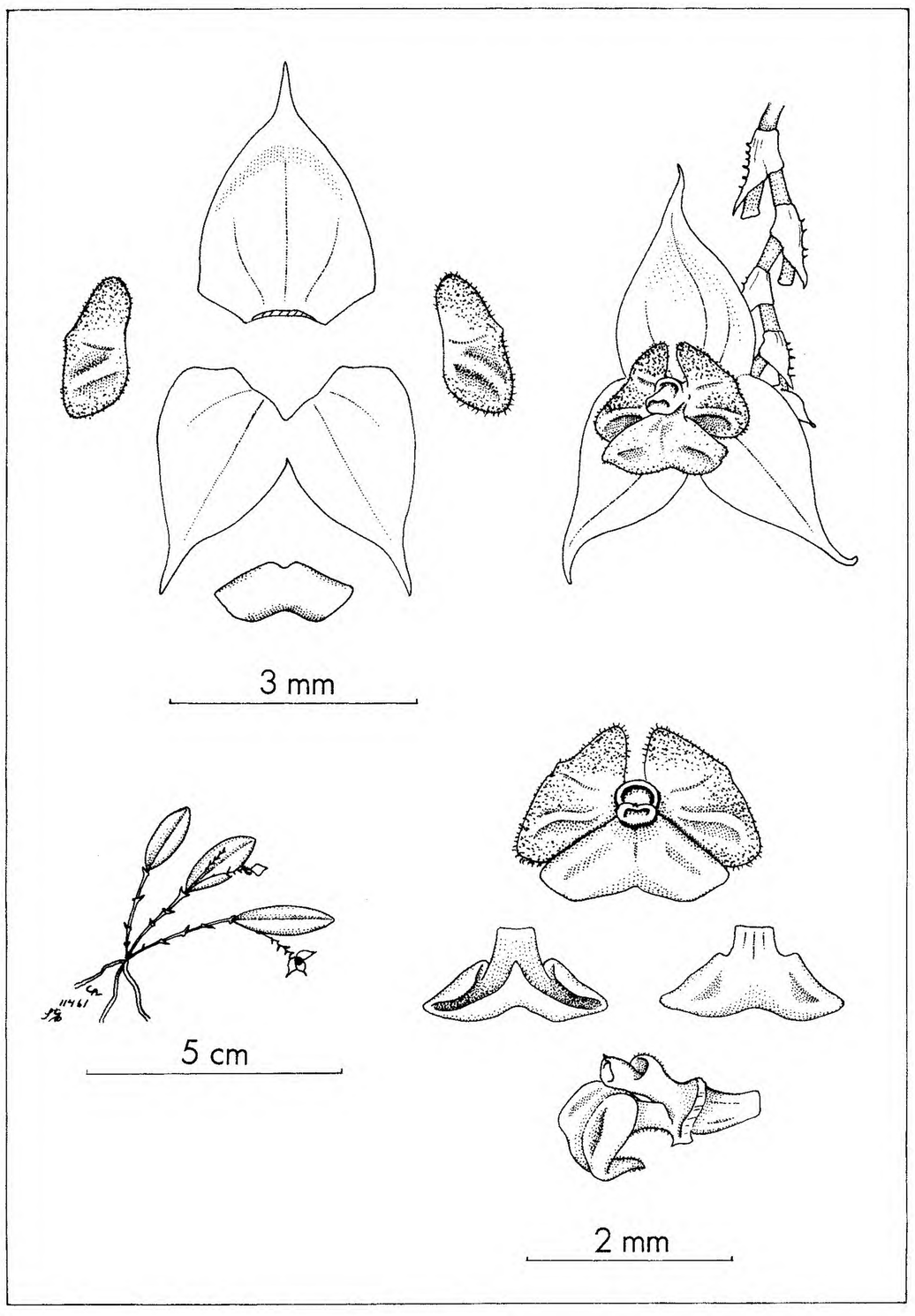

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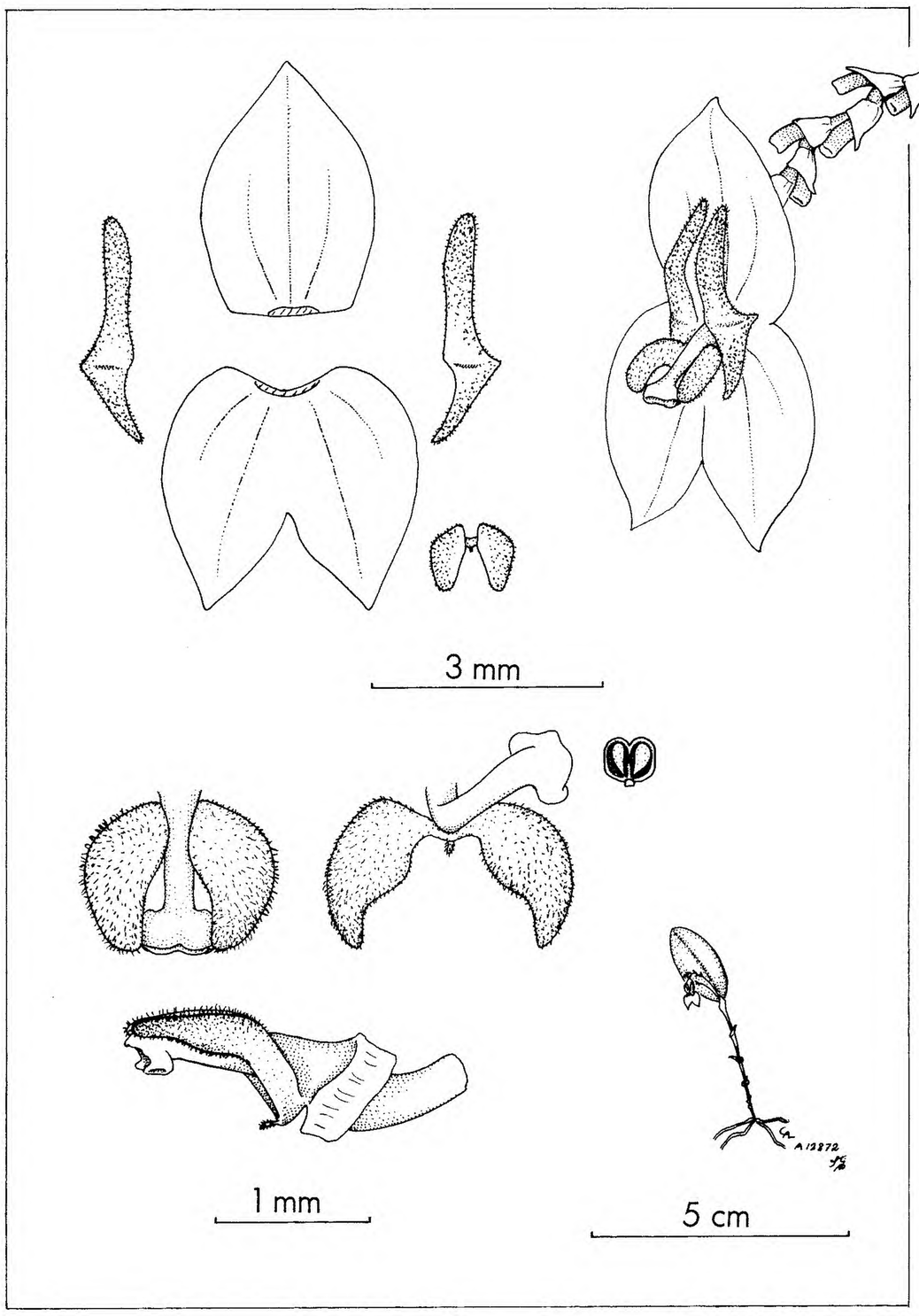

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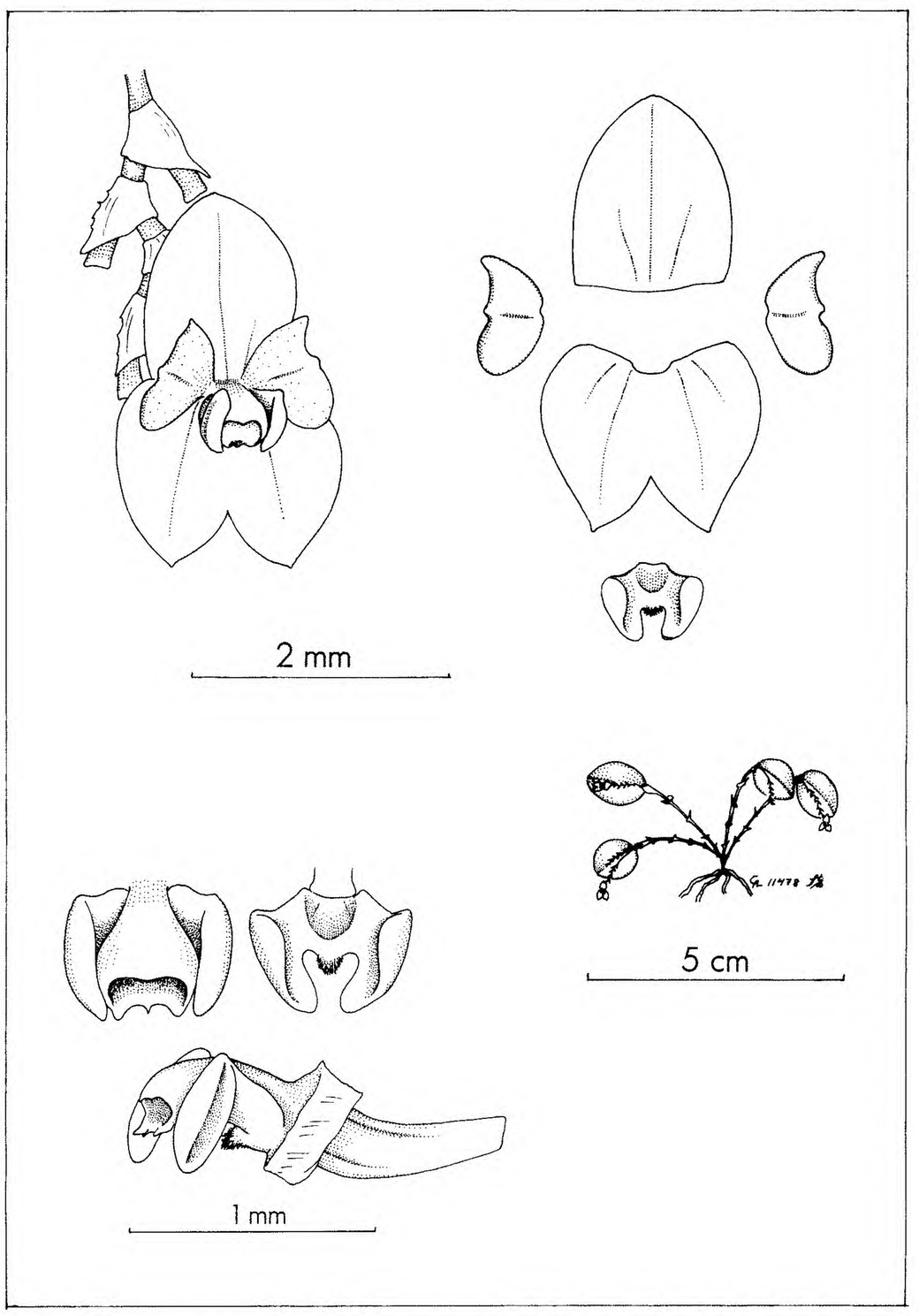

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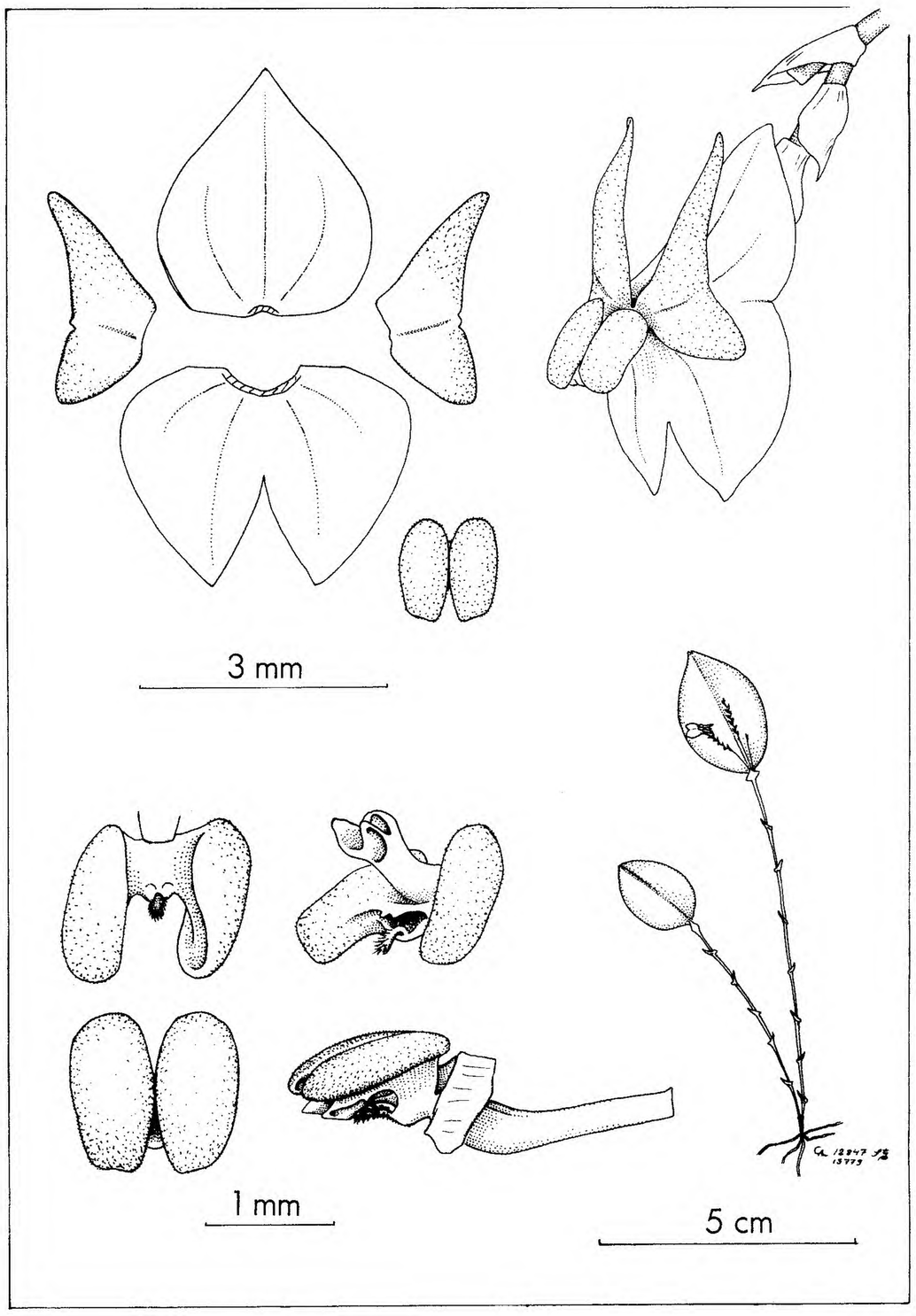

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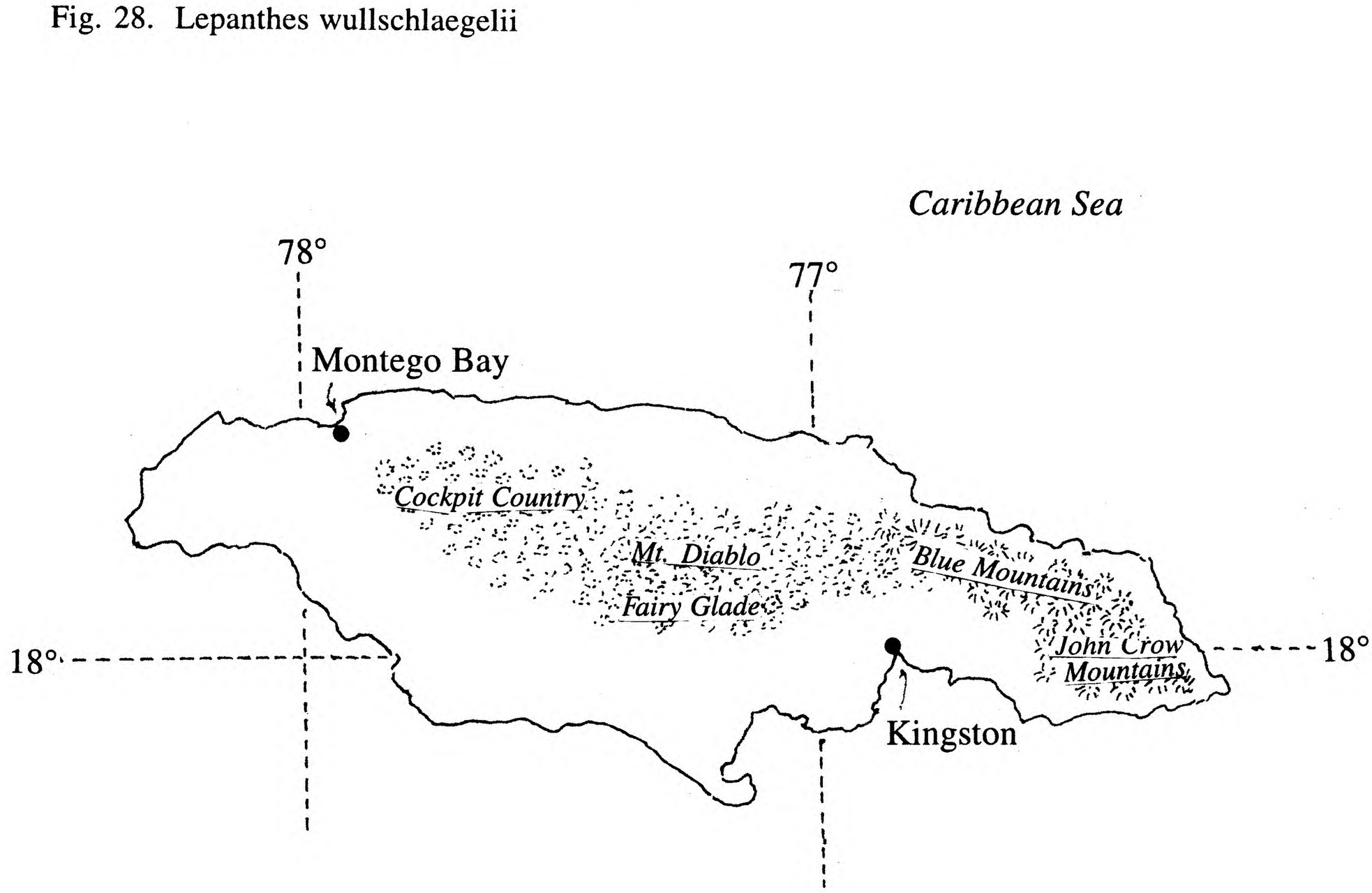

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SYSTEMATICS OF THE GENUS *STELIS*
and Part IV, the conclusion of
STELIS OF ECUADOR

ABSTRACT

A brief history of the genus *Stelis* Sw., and in particular, the genus *Stelis* in Ecuador, is given. A new revision of the classification of the genus is presented. Species not already described and illustrated in a previous *Icones Pleurothallidinarum* are described and illustrated herein with a black and white drawing. A key to the species known from Ecuador is presented. Thirty-five new species are described.

The following species are described as new:

Stelis abdita Luer, sect. *Humboldtia*
Stelis aclyda Luer & Hirtz, sect. *Stelis*
Stelis aequoris Luer & Hirtz, sect. *Humboldtia*
Stelis aglochis Luer, sect. *Stelis*
Stelis azuayensis Luer, sect. *Stelis*
Stelis carta Luer & Hirtz, sect. *Stelis*
Stelis coarctata Luer, sect. *Stelis*
Stelis complanata Luer & F.Werner, sect. *Stelis*
Stelis discophylla Luer & Hirtz, sect. *Stelis*
Stelis donaxopetala Luer, sect. *Stelis*
Stelis espinosae Luer & Endara, sect. *Stelis*
Stelis exquisita Luer, sect. *Stelis*
Stelis flagellaris Luer & Hirtz, sect. *Stelis*
Stelis gastrodes Luer & Hirtz, sect. *Humboldtia*
Stelis jatunyacuënsis Luer & Hirtz, sect. *Humboldtia*
Stelis kentii Luer, sect. *Stelis*
Stelis lugoi Luer & Endara, sect. *Stelis*
Stelis majorella Luer & Hirtz, sect. *Stelis*
Stelis oreada Luer & Endara, sect. *Stelis*
Stelis pan Luer & Hirtz, sect. *Stelis*
Stelis physoglossa Luer, sect. *Stelis*
Stelis pollex Luer & Hirtz, sect. *Stelis*
Stelis potpourri Luer, sect. *Stelis*
Stelis ramosii Luer, sect. *Stelis*
Stelis rostrata Luer, sect. *Stelis*
Stelis satyrella Luer & Hirtz, sect. *Stelis*
Stelis scopulosa Luer & Hirtz, sect. *Humboldtia*
Stelis singularis Luer & Hirtz, sect. *Humboldtia*
Stelis stiriosa Luer & Dalström, sect. *Humboldtia*
Stelis tobarii Luer & Hirtz, sect. *Humboldtia*
Stelis undecimi Luer & F.Werner, sect. *Stelis*
Stelis valladolidensis Luer & D'Alessandro, sect. *Humboldtia*
Stelis villosilabia Luer & Hirtz, sect. *Stelis*
Stelis xystophora Luer, sect. *Stelis*
Stelis zothecula Luer, sect. *Stelis*

New typifications:

Physosiphon inaequalis Schltr., lectotypes: AMES, F, W.
Pleurothallis corazonica Schltr., lectotype: QPLS.
Pleurothallis pristis Lehm. & Kraenzl., lectotype: AMES.
Stelis altigena Schltr., neotype: *Luer 9672* MO.
Stelis ambylophylla Schltr., neotype: *Luer 13876* MO.
Stelis apiculata Schltr., neotype: *Luer 9961* MO.
Stelis arevaloi Schltr., neotype: *Luer 13844* MO.
Stelis bernoullii Schltr., neotype: *Skutch 1433* SEL.
Stelis bryophila Schltr., lectotypes: AMES, BR.
Stelis callicentrum Schltr., lectotypes: QPLS, BR.
Stelis calothece Schltr., lectotype: BR.
Stelis carioi Schltr., lectotype: AMES.
Stelis citrina Schltr., lectotype: K, BR.
Stelis confusa Schltr., lectotype: AMES.
Stelis connata C.Presl, lectotype: K.
Stelis cordibractea Schltr., lectotypes: K, AMES.
Stelis costaricensis Schltr., lectotype: AMES.
Stelis coturcoënsis Schltr., lectotype: QPLS.
Stelis cuencana Schltr., lectotype: K.
Stelis curvata Schltr., lectotypes: US, AMES.
Stelis cuspidilabia Schltr., lectotype: AMES.
Stelis elegantula Schltr., neotype: *Hirtz 13182* MO.
Stelis fimbriata Baker, neotype: *Gentry 13182* MO.
Stelis fruticulus Schltr., lectotypes: AMES, LE.
Stelis fulva Schltr., lectotype: AMES.
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Stelis huancabambae Kraenzl., lectotype: AMES.
Stelis huebneri Schltr., neotype: *Barb.Rodr. Stelis yungasensis*, RB.
Stelis heylidiana C.Focke, neotype: *A.C.Smith* 2757 K.
Stelis hymenantha Schltr., lectotype: AMES.
Stelis inversa Schltr., lectotypes: CUZ, MOL.
Stelis jimenezii Schltr., lectotype: CR.
Stelis juninensis Kraenzl., lectotype: AMES.
Stelis langlassei Schltr., lectotype: K, AMES, G.
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Stelis minimiflora Schltr., lectotypes: AMES,
Stelis myriantha Schltr., neotype: *Luer 12035* MO.
Stelis pachyphylla Schltr., neotype: *Luer 9735*, MO.
Stelis pachystele Schltr., lectotypes: AMES, K.
Stelis patula Schltr., lectotypes: AMES, BR, US.
Stelis phaeantha Schltr., lectotypes: CUZ, G, MOL.
Stelis pleistantha Schltr., neotype: *Luer 9903* MO
Stelis pterostylis Schltr., lectotype: BR.
Stelis purpusii Schltr., lectotype: AMES.
Stelis recurvula Schltr., lectotype: MO.
Stelis rhizomatosa Schltr., lectotypes: AMES, US.
Stelis rhynchantha Lehm, & Kraenzl., lectotype: MO.
Stelis robusta Schltr., neotype: *Luer 12537* MO.
Stelis scandens Schltr., neotype: *Luer 9735* MO.
Stelis seleniglossa Schltr., lectotype: AMES.
Stelis suaveolens Schltr., lectotypes: K, AMES.
Stelis superposita Schltr., lectotype: MO.
Stelis tenuis Schltr., lectotypes: K, LE.
Stelis tricuspis Schltr., lectotypes: US, AMES, CR.
Stelis vulcanica Schltr., lectotype: SEL.
Stelis yungasensis Schltr., lectotype: AMES.

The genus *Stelis* was proposed by Swartz in 1799, five years after the genus was first published by Ruiz and Pavón as *Humboltia* (corrected to *Humboldtia* in 1798). However, also in 1794, Vahl had described a genus *Humboldtia* in the Leguminaceae. Summarizing the problem of priority for uncertain dates of publications of the name *Humboldtia* in 1794 by both Vahl and Ruiz and Pavón (Taxon, 1986), let it be said simply that the name *Stelis* was conserved in 1905, rejecting the name *Humboldtia* Ruiz & Pav. as a homonym. Vahl had won.

The lectotype of the genus *Stelis*, designated in 1929 by Green, is *Stelis ophioglossoides* (Jacq.) Sw. (=*Epidendrum ophioglossoides* Jacq., 1760, based on his own collection, not on a polynomial by Plumier in 1703), a small species from the Lesser Antilles, because no type had been designated. A debate about the identity of the lectotype arose in 1972, when Garay declared that the designated type was referable to Plumier's polynomial, which resembled *Pleurothallis floribunda* (Lindl.) Lindl. [=*Arthrosia floribunda* (Lindl.) Luer], but Green's lectotype stands.

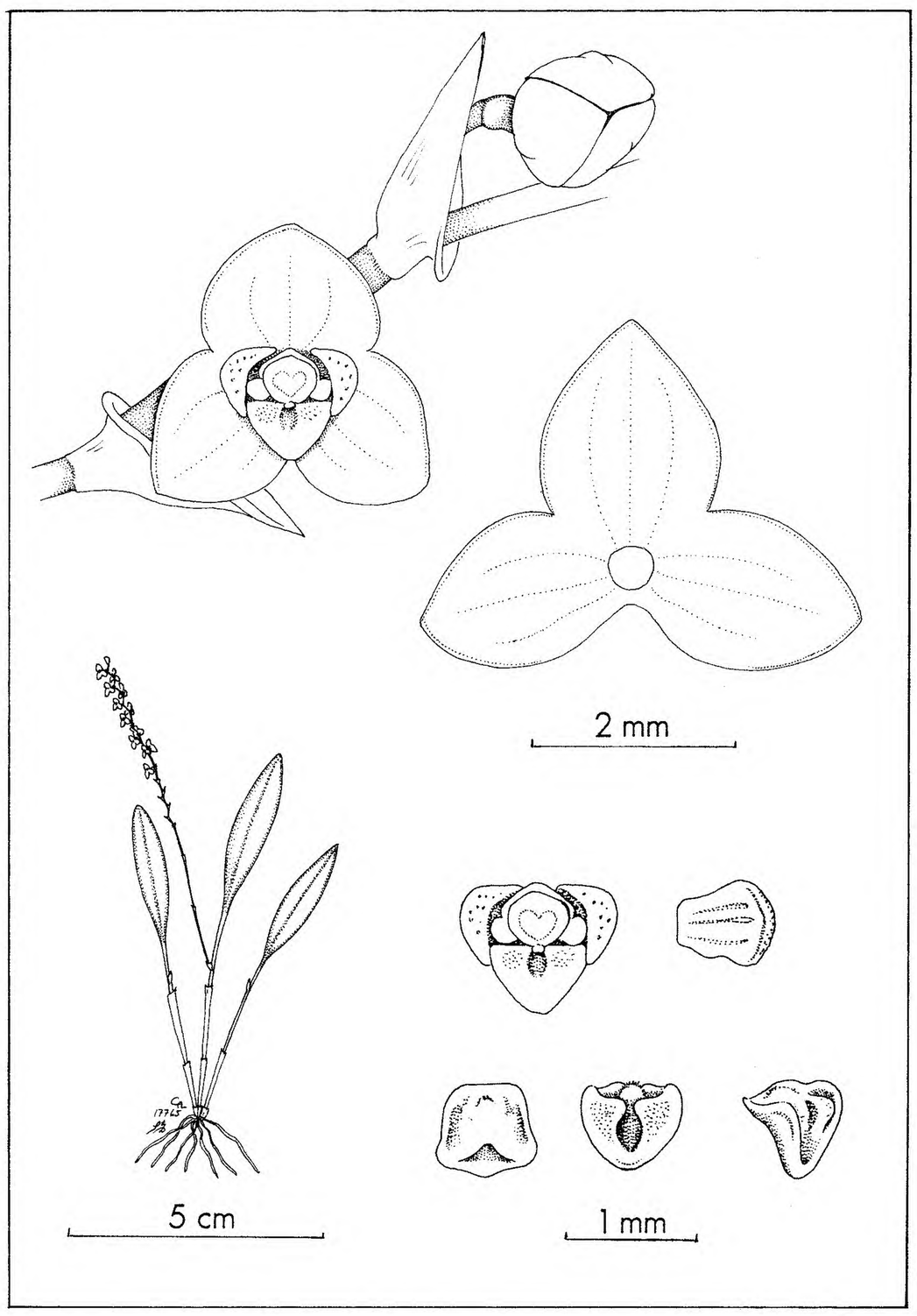


Fig. A. Stelis ophioglossoides

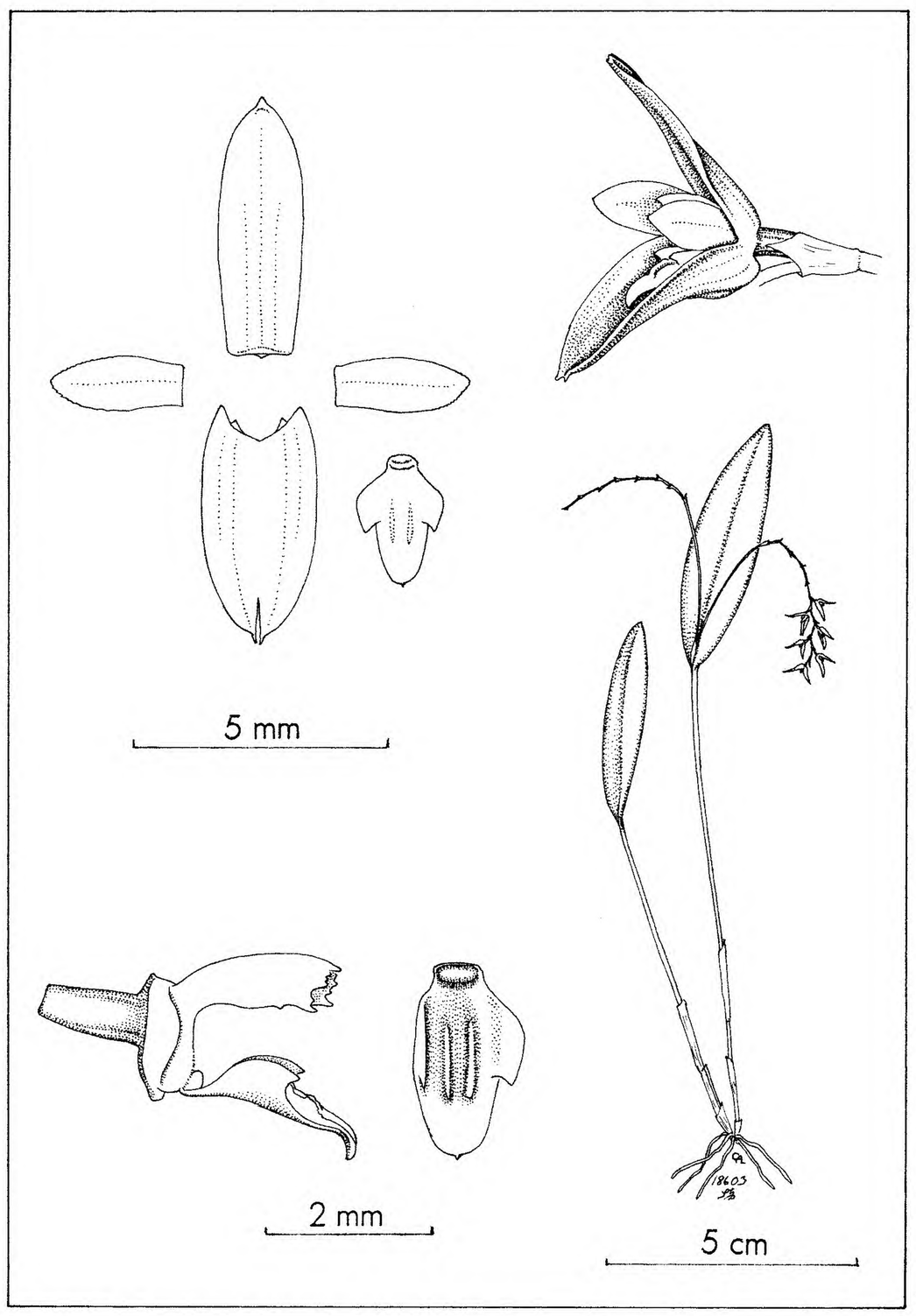


Fig. B. Arthrosia floribunda

The treatment of the entire genus *Stelis* Sw. in a single work would be overwhelming, not only for the author, but also for anyone attempting to consult it (Luer, 2007). Regional treatments, such as this present treatment of the *Stelis of Ecuador*, are feasible. The genus, the largest in number of species in the Pleurothallidinae after the dissolution of *Pleurothallis* R.Br., is also the one in greatest need of revision, because the morphology of the very small floral parts had never been adequately examined, defined, and standardized for description.

Approximately 1,200 names have been attributed to the genus, but that number includes the 197 species (including 27 homonyms) of several other pleurothallid genera recently transferred to *Stelis* (Pridgeon & M.W.Chase, 2001, 2002). Because of fundamental differences in the morphology of sepals, petals, lips, columns, anthers, and stigmas, these transfers were excluded from the treatment of the genus (Luer, 2007). Excluding these transfers, the number of species presently attributed to *Stelis* is about 1000, but possibly fewer than 900 are accepted as of this writing.

The first attempt to classify the genus was made by John Lindley in his *Folia Orchidaceae (Stelis)* (Lindley, 1858). In brief descriptions and comments, he listed the 135 species known at the time, and proposed a classification in ten unranked categories, three analogous to later subgenera, three, to sections, and four, to subsections. The first category (his *Eustelis*, the section *Stelis* of today) contained those species with three more or less equal sepals; the second category [his *Dialissa*, assorted today into sections *Humboldtia* (Ruiz & Pav.) Pers. and *Stelis*] contained those species with sepals partially connate into a tube; and the third category (his *Labiatae*) contained those with bilabiate flowers with connate or connivent lateral sepals (treated now in sections *Humboldtia* and *Stelis*). All these species are so closely allied that separation into sections beyond the three presented here, depends totally upon key characters of the flowers regardless of relationship. Leslie Garay made two attempts to classify the genus (Garay, 1956; Garay, 1980) when he acknowledged about 500 species. In the later treatment, he included 222 illustrations mostly by Elmer Smith using only a rehydrated flower. A brief classification of the genus was proposed in *Icones Pleurothallidinarum* (Luer, 1986).

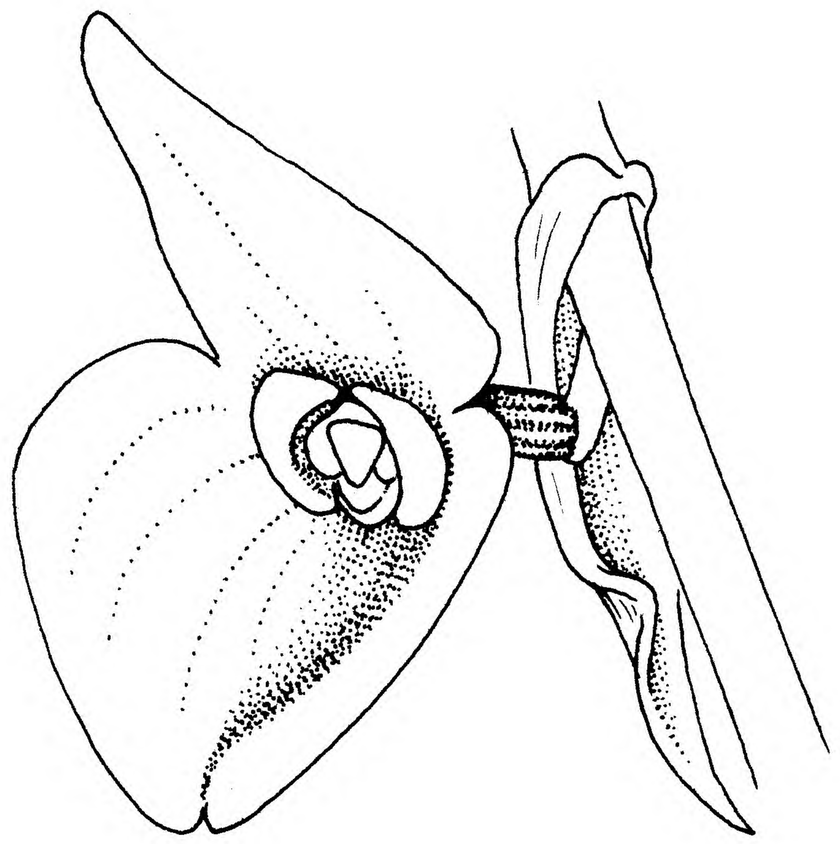


Fig. C. Stelis purpurea
Bas.: Humboldtia purpurea

Stelis Sw., J. Bot. (Schrader) 2(4): 239, t. 2, fig. 3, a-g, 1799, nom. cons.

Ety.: From the Greek *stelis*, "a kind of Mistletoe," in allusion to the appearance of the plant.

Type Cons.: *Epidendrum ophioglossoides* Jacq., Enum. Pl. Carib. 29, 1760. [=*Stelis ophioglossoides* (Jacq.) Sw., J. Bot. (Schrader) 2(4): 239, 1799]. (Green, Prop. Brit. Bot. 100, 1929).

Syn.: *Humboltia* Ruiz & Pav., Fl. Peruv. Chil. Prodr. 121, t. 27, 1794, not *Humboldtia* Vahl, 1794, nom. rej., spelling corrected to *Humboldtia* in Syst. Veg. Fl. Peruv. Chil. 235, 1798.

Ety.: Named in honor of Alexander von Humboldt (1769-1859).

Lectotype: *Humboldtia purpurea* Ruiz & Pav., Syst. Veg. Fl. Peruv. Chil. 235, 1798. [=*Stelis pur purea* (Ruiz & Pav.) Willd., Sp. Pl. 4: 140, 1805. (Garay & Sweet, J. Arnold Arbor. 53: 528, 1972).

Syn.: *Dialissa* Lindl., Ann. Mag. Nat. Hist, 15: 107, 1845.

Ety.: Probably from the Latin *Dialis,* "aerial, or heavenly," used by Apuleius in his *Metamorphosis*, pertaining to extraordinary features.

Type: *Dialissa pulchella* Lindl.

Syn.: *Stelis* subgen. *Humboldtia* (Ruiz & Pav.) Pers., Syn. Pl. 2: 524, 1807.

Syn.: *Steliopsis* Brieger, Orchideen 8(29-32): 457, 1976, without Latin diagnosis.
Ety.: From the genus *Stelis* and the Greek *opsis*, referring to the similarity to *Stelis*.
Type: *Steliopsis anneliesae* Brieger = *Stelis maxima* Lindl.

Syn.: *Apatostelis* Garay, Bot. Mus. Leafl. Harvard Univ. 27(7-9): 167-259, 1980.
Ety.: From the Greek *apate*, "a fraud," and *Stelis*, alluding to a supposedly fradulent *Stelis*.
Type: *Stelis hylophila* Rchb.f.

Plants tiny to gigantic, caespitose, prolific, or repent. Ramicauls enclosed by 1-2 tubular sheaths with another 1-2 sheaths at the base, **Leaf** coriaceous, elliptical, ovate, obovate, or oblong, petiolate to sessile, **Inflorescence** single-flowered to many-flowered racemes, simultaneously or successively flowered, subtended by a spathe, insignificant to conspicuous, from an annulus below or at the apex of the ramicaul; floral bracts enclosing the pedicel; ovary tricarpellate; flowers minute to large for the Pleurothallidininae, bilaterally symetrical; **sepals** 3, surrounding a central apparatus consisting of the column flanked by a pair of petals and the lip below the column, all 3 more or less similar and variously connate, or the dorsal sepal different from the 2 lateral sepals that are often connate into a synsepal, glabrous to variously pubescent; **petals** small, usually transverse and not longer than the column; **lip** small, thick, subquadrate, three-dimensional, the length being the distance beneath the column from the attachment to the column-foot to the front surface, and the depth being the distance on the front surface from the column to the apex, the width being the transverse distance from one side to the other beneath the column and marked by a transverse callus, the bar, in the center of which the glenion develops from a modification of the midvein of the lip; **column** stout, with an apical anther and stigma, the stigma usually bilobed, but sometimes the lobes are totally confluent: pollinia 2, with or without a viscidium.

Although seemingly diverse vegetatively in their wide dispersal at various altitudes from southern Mexico into northern Argentina, with caespitose, repent, scandent, or prolific (ramicauls proliferating another ramicaul) habits, the flowers of all species of *Stelis* follow a basic pattern. A terete ramicaul is enclosed by one or two tubular sheaths, and one or two moreat the base. The leaf is either sessile or petiolate. There is a continuum in the decrease of the distance between the abscission layer (the transverse, detachable layer between the base of the leaf or the petiole, and the apex of the ramicaul) and the thickened ring (the annulus) surrounding the ramicaul near or at the apex, with which the spathe and inflorescence emerge. The peduncle and rachis are terete except for a very few that are compressed.

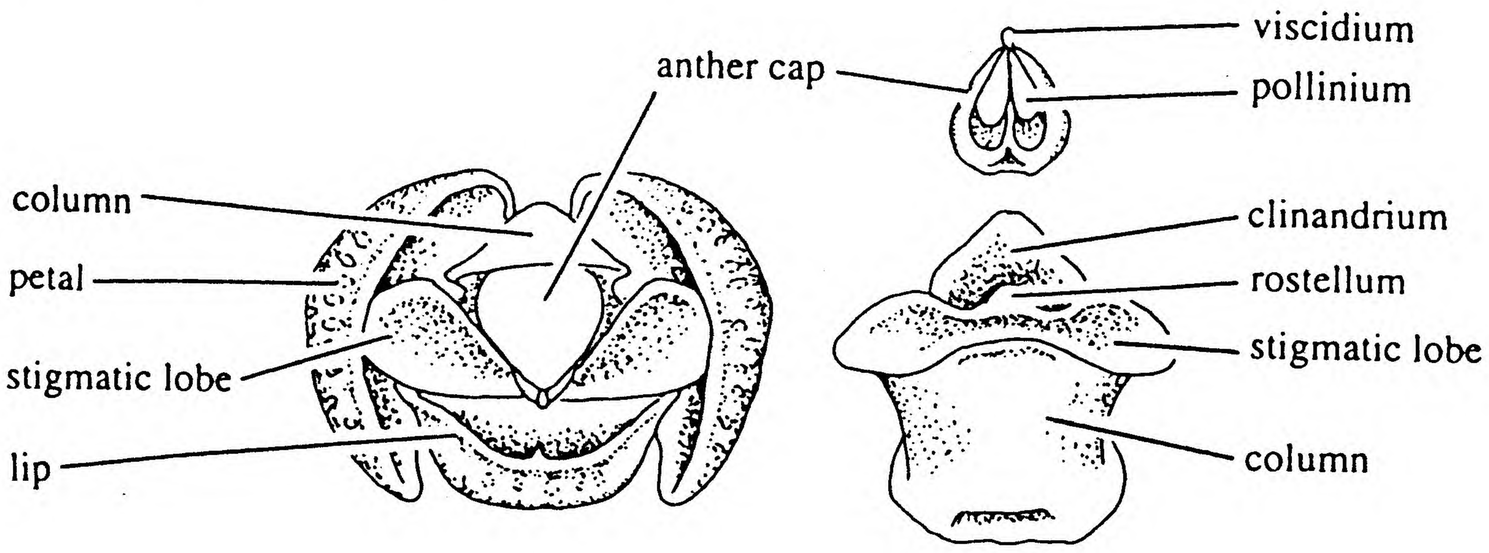
The inflorescence is racemose, longer or shorter than the leaf, and rarely reduced to a single flower. The flower is borne by a pedicel subtended by a floral bract. Florally, the species of *Stelis* are distinct from species of all other pleurothallid genera. In common, three sepals surround the petals, lip and column that together form a small, compact, central apparatus with the column and anther upper center, the lip lower center, and all neatly embraced by a pair of petals, one on either side.

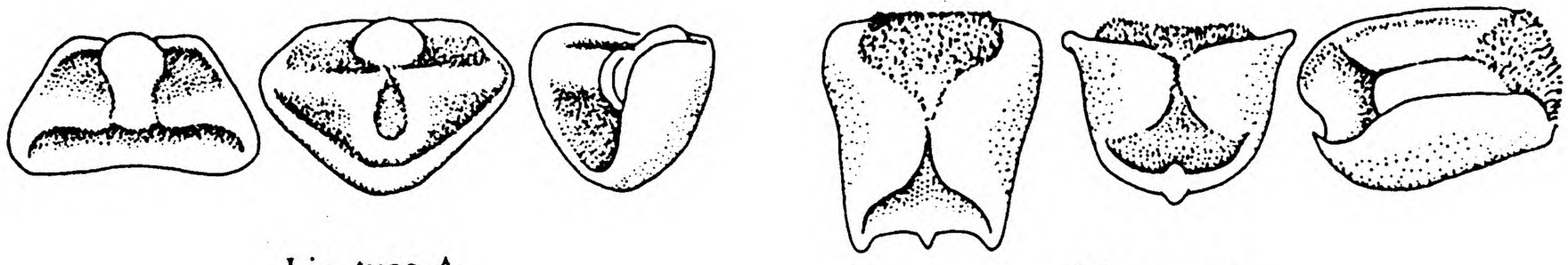
The sepals vary in color, often within a species. They are usually glabrous externally, but internally they vary from glabrous to densely pubescent. The

number of veins in the sepals, varying from three to seven or more, are valuable key characters. Larger flowers toward the bottom of a raceme may have an additional pair of veins. Most commonly, the sepals are widely expanded, but in a large percentage, the lateral sepals are held forward, or connate as one, a synsepal, the criterion used for separating species of *Stelis* sect. *Humboldtia* from those of section *Stelis*. At least one species, *S. distans* Luer & Hirtz, has features suggesting both sections; hence, it is found in the keys to both sections. The sepals of the genus are never truly caudate.

The petals of all the species of *Stelis* are short, usually transverse, and about as long as the column. The apical margin is more or less rounded and truncate, often abruptly thickened, sometimes apiculate, and a transverse callus often extends across the middle from side to side between the thick margin and the base. However, the petal is occasionally smoothly concave with no transverse callus discernible. The petals most commonly are three-veined, but a significant number are single-veined. Although not absolutely constant, the number of veins serves as a reliable key character for the vast majority of species. Notably, in *Stelis hallii* Lindl., the petals are usually one-veined, but a faint vein to either side of the central vein sometimes appear.

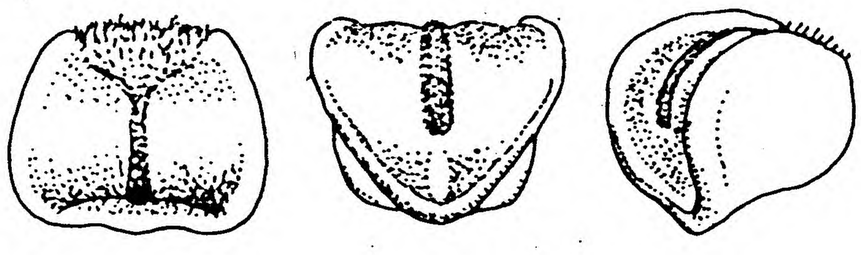
The lip is also short but thick, and usually intricately sculptured. A more or less central, transverse callus, called the bar, bears a glenion, if it is not obliterated by a cavity. The lip is three-veined, and these veins are often manifested by one or three calli on the dorsum. The middle vein often persists, extending forward from the dorsum across the bar as a glenion. Three common variations are recognized as type-A, type-B, and type-C, each of which can be modified beyond recognition. Type-A and type-B are described in detail in Part One in Icones XXIV (Luer, 2002). Type-C is also subquadrate, about as broad as long. The bar is replaced by a thick, non-concave callus as a broad, convex curve that reaches from the base to the apex. A typical example is the lip of *Stelis argentata* Lindl.





Lip, type-A

Lip, type-B



Lip, type-C

The column of all the species of *Stelis* is short and broad with an apical anther, and an apical stigma that is most commonly bilobed, the lobes sometimes being borne on arms, but sometimes coalesced as one. The anther cap is usually deciduous. Pollen is packed into a pair of pollinia that vary from pyriform or obovoid to discoid that are either free or attached to a viscidium. The pollinia are of little value in identification, not only because of their similarity, but also because they are commonly lost from flowers of collected plants.

Stelis of Ecuador

During the middle of the nineteenth century, Lindley described 63 species of *Stelis* from Ecuador, mostly from collections by Jameson, a resident physician in Quito. Forty-three of these names are still accepted today. Soon thereafter, Reichenbach added 20 more names, 12 of which are still accepted. By 1921, Schlechter had described 21 species of *Stelis* from Ecuador, only three of which, excluding *Stelis guatemalensis* from Guatemala, are currently accepted. In 1921, he published a list of 79 species reported from that country. Forty-three of these species are presently accepted, the remainder being misidentified, erroneously attributed to Ecuador, or are synonymous names. About 80 additional species from other regions have now been identified as occurring in Ecuador as well. Several other Central American species are also found in Ecuador.

In three previous publications of *Icones Pleurothallidinarum*, 300 new species of *Stelis* from Ecuador were described, each with a black and white illustration, but without an attempt to reclassify the genus (Luer, 2002; Luer, 2004; Luer, 2007). In this fourth *Icones Pleurothallidinarum* a revision of the classification of the genus, based on more than 2,000 collections, is presented with the remaining approximately 100 previously known species, and 33 new species, that complete the genus as known today in Ecuador. These more than 400 species represent nearly half the known species in the genus, but this is because Ecuador has been the most intensively studied for the Pleurothallidinae.

Several complexes in *Stelis* of similar, intergrading taxa, or variations, cause uncertainties in identification, as in other genera, but not to the extent encountered in *Acronia* C.Presl sect. *Macophyllae-Fasciculatae* (Lindl.) Luer. One such complex in *Stelis* consists of named, vegetative variations, but with similar, if not practically identical flowers, that are all assigned to *Stelis pusilla* Kunth. Another complex with morphologically similar flowers contains the taxa between the vegetative extremes of small variations of *S. muscifera* Lindl. and the larger variations of *S. triplicata* Lindl. *Stelis argentata* Lindl. is notorious for both vegetative and floral variations.

After a similar amount of time and effort have been expended in neighboring Colombia and Peru, Ecuador may drop to third in numbers of species, because both neighboring countries are more than four times larger in geographic area. However, the smaller Ecuador has the floristic advantage of straddling the equator, as well as the Andes with its varied habitats on both eastern and western slopes.

The Descriptions

As pertains to *Stelis*, each species is defined by a standardized description. They are in sufficent detail without the use of excessive words. They begin with the habit which is small, medium or large for the genus. Small usually indicates that the plant is less than five centimeters tall, exclusive of the inflorescence; medium sized plants are usually between five centimeters and ten centimeters tall; and large plants are any size greater.

The habit is commonly caespitose, which means that the ramicauls, the leaf-bearing stems, are produced in a fascicle with little or nor rhizome visible between them. When the rhizome is elongated, the ramicauls are produced at short or long intervals, which eventually creates a creeping or repent habit. The rhizome may hug the substrate, or ascend, which eventually creates a climbing or scandent habit. In some species, the ramicaul proliferates one or more other ramicauls at the same node where the inflorescence emerges, creating a climbing or vining habit.

The shapes and thickness of the leaves are often inconstant in a species. Instead of the terms "lanceolate" or "oblanceolate," the terms "narrowly ovate" or "narrowly obovate" are used. If the margins of tips form an angle less than 90° wide, they are called ''acute,'' and if the angle is greater than 90°, they are called obtuse. The angles are often obscured by curved margins that eventually become rounded. Determination of an acute, subacute, obtuse, or subobtuse apex, is often a personal judgement.

The inflorescence is either single-flowered or racemose; the raceme is often single, but several or many racemes can be produced in a fascicle. The term "few" usually indicates two, three, or even four, and ''several'' is somewhere between "few" and "many." The term "several" usually indicates between four and 10 or 12, and "many" is more. Counting the numbers of flowers in a many-flowered raceme is too inexact to attempt, the number depending on the growing condition or vigor of the plant in question.

The description of the flowers follows that in the description of the genus above.

Citation of Specimens

The citation of specimens follows the description. The holotype of the species under consideration is listed first in the distribution, with Holotype and Isotype capitalized. For citation of synonymous species, holotype and isotype are not capitalized. Following the Holotype, collections are listed in their respective province, or department, roughly in order from north to south, and west to east. Abbreviations are minimized. The altitude, or elevation, is abbreviated to alt., meters to m, and feet to ft. Altitudes in meters are given without a comma, and altitudes in feet are given with a comma.

The Illustrations

The illustrations are a thirty-year accumulation. More than one illustration of a species is provided when variations of the species, or the illustrations themselves, differ noticeably. The measurements are approximate, because a normal variability can be expected in all. For each, a plant has been drawn in natural size with a five-centimeter scale bar. A flower in a position to show best its appearance is drawn

from three times to thirty times natural size, accompanied by the sepals of a dissected flower. The central apparatus intact, an individual petal, and the lip are drawn up to 40 times natural size. Because of the three dimensional morphology of the minute lip, it is drawn from two to five different perspectives. The minute size of the parts precludes providing too exact dimensions.

Three hundred species have been published in three parts in *Icones Pleurothallidinarum* since 2002, and have been inked by Stig Dalström. Most of the hundred or more species previously published have also been inked by Stig Dalström. The texts and illustrations of the species that follow in the final fourth part include not only all those that have never been published, but also those that differ significantly from their original publication with additional, critical information.

Every illustration is supported by floral parts preserved in liquid (about 55 parts by volume of ethyl alcohol, about 5 parts household glycerine, and about 40 parts tap water). Dry flowers are rehydrated in household ammonia, then preserved in the above solution. Many rehydrated flowers prove worthless, especially if already old, mutilated, or crushed in drying. However, some flowers rehydrate to a pristine condition, if they were fresh when dried, and not crushed in drying.

Species are numbered by their appearance within the *Icones Pleurothallidinarum* series. Bold numbers indicate the illustrations of new species and illustrations of previously treated species that have not appeared in the series. Italicized numbers indicate species included for a change or additional information, and illustrations previously published in the series.

The Keys

The species are treated in 10 dichotomous keys. A dichotomous key is a key built on successive comparisons of morphological features in numbered pairs. These couplets list characters in the order of a description. Where applicable, the habit is followed by the leaf, ramicaul, inflorescence, sepals, petals and lip. If a couplet seems vague, the illustrations can be consulted.

The habit is the most obvious key character, whether it be caespitose, repent, or prolific, or small or large, followed by the most obvious key characters of the inflorescence: racemes, floral bracts and flowers, especially the connation and position of the sepals. In spite of variability, vegetative and floral size is also useful in dividing great numbers into smaller numbers. The number of veins in the dorsal sepal is most useful, followed by the number of veins in the petals, but this last key character is not easily seen hidden in tiny flowers. However, with digital dexterity and patience in the use of a 10 power loupe, this valuable information can be had. Unfortunately, a flower will have to be mutilated or sacrificed.

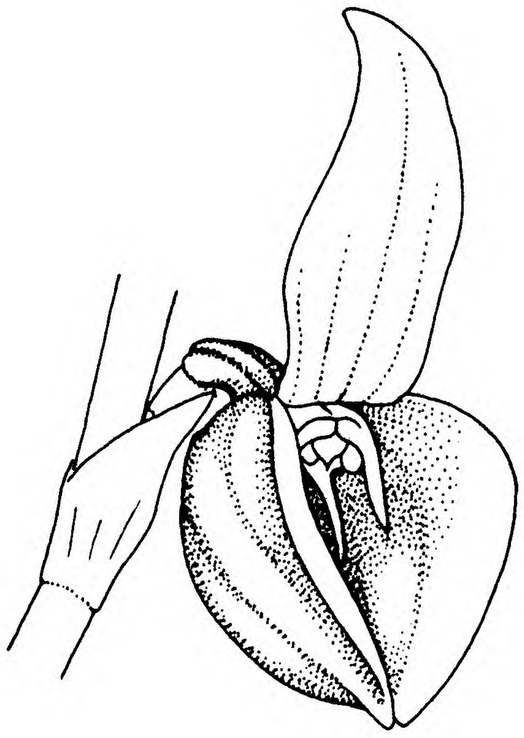
Although purely artificial, the size of the plant is used to decrease large numbers of superficially similar plants into smaller keys for ease in handling. Unfortunately, the dividing line is not always clear, so plants near the dividing line are included in both keys. Also, questionable, borderline plants should be sought in both keys.

In the construction of this key, every species was re-evaluated. While creating problems, constructing a key also solves problems. Similar species gravitate together for comparison. Often some species prove to be too similar to maintain, whereupon they are reduced to synonymy. Construction of a key also exposes undetected synonyms. On the other hand, unrecognized new species sometimes appear among those originally thought to be duplicate specimens, or others that were thought to be synonyms.

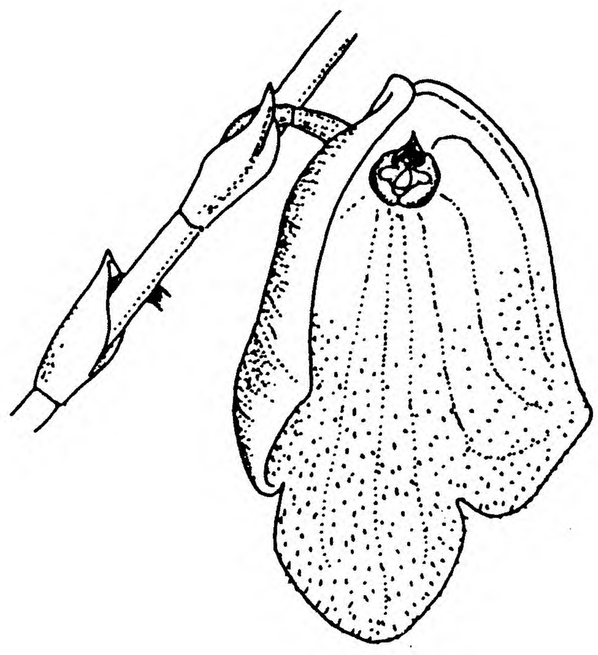
KEY I

KEY TO THE KEYS

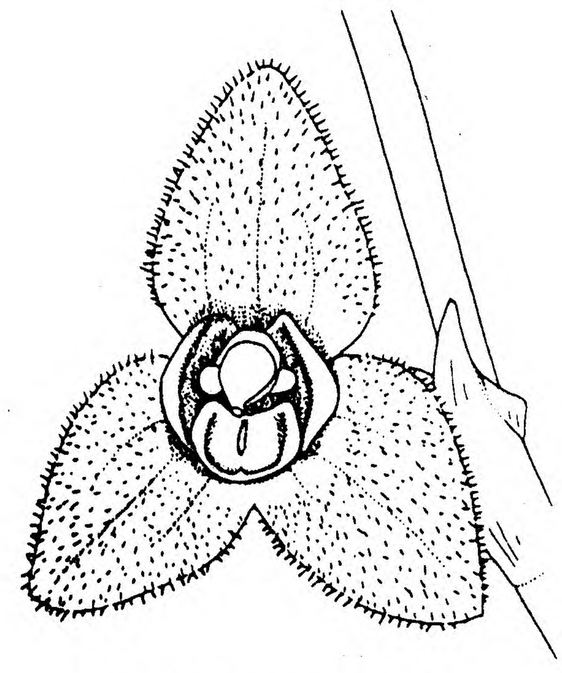
1 Sepals dissimilar, the lateral sepals variously connate into a concave synsepal (1. **Stelis** Sect. **Humboldtia**)
2 Plant caespitose
3 Plant less than 8 centimeters tall.....KEY II, page 41.
3' Plant more than 8 centimeters tall.....KEY III, page 44.
2' Plant repent, scandent, or prolific.....KEY IV, page 47.
1' Sepals similar, lateral sepals not variously connate into a concave synsepal
4 Lateral sepals deeply divided, usually more deeply connate to the dorsal sepal than to themselves; column with stigmatic lobes overlying the hilum of the petals (2. **Stelis** Sect. **Nexipous**).....KEY V, page 94.
4' Lateral sepals not more deeply connate to the dorsal sepal than to themselves; column with stigmatic lobes rarely overlying the petals (3. **Stelis** Sect. **Stelis**).
5 Plant caespitose
6' Sepals expanded, neither concave nor antrorse
7 Plant less than 5 centimeters tall.....KEY VI, page 103.
7' Plant more than 5 centimeters tall
8 Plant between 5 and 10 centimeters tall.....KEY VII, page 107.
8' Plant more than 10 centimeters tall.....KEY VIII, page 112.
6' Lateral sepals antrorse or concave.....KEY IX, page 118.
5' Plant repent, scandent, or prolific.....KEY X, page 123.



Stelis Sect. *Humboldtia*)



Stelis Sect. *Nexipous*)



Stelis Sect. *Stelis*).

1. *STELIS* Sect. *HUMBOLDTIA*

Stelis sect. **Humboldtia** (Ruiz & Pav.) Pers. Syn. Pl. 2: 254, 1807.

Bas.: *Humboldtia* Ruiz & Pav.
Type: *Humboldtia purpurea* Ruiz & Pav. = *Stelis purpurea* (Ruiz & Pav.) Willd.

Syn.: *Dialissa* Lindl., Ann. Mag. Nat. Hist. 15: 107, 1845.
Type: *Stelis dialissa* Rchb.f.

Syn.: *Stelis* sect. *Labiatae* Lindl., Ann. Mag. Nat. Hist. 15: 107, 1845.
Type: *Stelis brevilabris* Lindl.

Syn.: *Steliopsis* Brieger, Orchideen 8(29-32): 457, 1976, without Latin diagnosis.
Type: *Steliopsis anneliesae* Brieg. = *Stelis maxima* Lindl.

Syn.: *Stelis* subgen. *Stelis* Sw. Garay. sensu Garay, Canad. J. Bot. 34: 350, 1956.
Type: *Humboldtia purpurea* Ruiz & Pav. = *Stelis purpurea* (Ruiz & Pav.) Willd.
Ety.: From the Latin *inaequalis*, "unequal," referring to the different sizes of the dorsal sepal and the synsepal.

Syn.: *Stelis* sect. *Disepalae* Rchb.f., Bonplandia 3: 70, 1855, not validly punlished.
Ety.: From the Greek *disepalon*, "two sepals," referring to the bilabiate flowers.
Lectotype: *Stelis melanoxantha* Rchb.f., for the description of which the proposed section was made.

Syn.: *Stelis* sect. *Valvae* Garay, Canad. J. Bot. 34: 351, 1956,
Ety.: From the Latin *valvae*. "valves," referring to the bivalvate (bilabiate) flowers.
Type: *Humboldtia purpurea* Ruiz & Pav. = *Stelis purpurea* (Ruiz & Pav.) Willd.

Typified by *Stelis purpurea* (Ruiz & Pav.) Willd., this section is distinguished by bilabiate flowers created by a nearly free, erect or suberect dorsal sepal, and a synsepal that is formed by partial to complete connation of the lateral sepals. When incompletely connate, the lateral sepals connive to form a concave synsepal, with their tips in apposition or nearly so. There is a progression from a forwardly directed, concave synsepal to a non-concave synsepal in an expanded, or a more or less flat flower. Many species in *Stelis* sect. *Stelis* with more or less similar sepals, but with the lateral sepals antrorse, and sometimes connivent, simulating a synsepal, constitute Key IX. Assigning some species to this section can be debatable. All non-caespitose species of *Stelis* sect. *Stelis* are in Key X.

All three vegetative habits occur in *Stelis* sect. *Humboldtia*, but only two variations of the lip: type-A or type-B. *Stelis* sect. *Humboldtia* is divided for convenience into three keys: small caespitose plants less than eight centimeters tall excluding inflorescence in Key II, larger caespitose plants taller than eight centimeters in Key III, and plants with prolific, repent, or scandent habits in Key IV.

Twenty-five species of *Stelis* sect. *Humboldtia* are small, caespitose and less than eight centimeters tall, excluding the inflorescence. They are listed below, followed by their appearance within the *Icones Pleurothallidinarum* series.

Stelis ann-jesupiae Luer, *Icones Pleuroth.* 24, Part One, Fig. 6.
Stelis brachiata Luer, *Icones Pleuroth.* 24, Part One, Fig. 11.
Stelis buccella Luer & Hirtz, *Icones Pleuroth.* 26, Part Two, Fig. 106.
Stelis bucculenta Luer & Hirtz, *Icones Pleuroth.* 29, Part Three, Fig. 214.
Stelis dactyloptera Rchb.f., *Icones Pleuroth.* 30, Part Four, Fig. 313.
Stelis delhierroi Luer & Hirtz, *Icones Pleuroth.* 26, Part Two, Fig. 109.
Stelis distans Luer & Hirtz, *Icones Pleuroth.* 24, Part One, Fig. 49.
Stelis embreei Luer & Hirtz, *Icones Pleuroth.* 24, Part One, Fig. 15.
Stelis flexilis Luer & Hirtz, *Icones Pleuroth.* 24, Part One, Fig. 18.
Stelis florianii Luer, *Icones Pleuroth.* 24, Part One, Fig. 19.

Stelis galeola Luer & Hirtz, *Icones Pleuroth.* 24, Part One, Fig. 20.
Stelis globiflora Rchb.f., *Icones Pleuroth.* 30, Part Four, Fig. 318.
Stelis glossula Rchb.f., *Icones Pleuroth.* 30, Part Four, Fig. 320.
Stelis humboldtina Luer & Hirtz, *Icones Pleuroth.* 26, Part Two, Fig. 111., **S. patens**.
Stelis jatunyacuënsis Luer & Hirtz, new sp., *Icones Pleuroth.* 30, Part Four, Fig. 322.
Stelis memorialis Luer & Hirtz, *Icones Pleuroth.* 26, Part Two, Fig. 115.
Stelis nycterina Luer & Hirtz, *Icones Pleuroth.* 24, Part One, Fig. 22.
Stelis odobenella Luer, *Icones Pleuroth.* 30, Part Four, Fig. 328.
Stelis opercularis Luer, *Icones Pleuroth.* 30, Part Four, Fig. 329.
Stelis patens Luer & Hirtz, *Icones Pleuroth.* 24, Part One, Fig. 24.; Part Two, Fig. 111.
Stelis sanchezii Luer & Hirtz, *Icones Pleuroth.* 24, Part One, Fig. 31.
Stelis sumacoënsis Luer & Hirtz, *Icones Pleuroth.* 24, Part One, Fig. 34.
Stelis thoerleae Luer, *Icones Pleuroth.* 26, Part Two, Fig. 125.
Stelis tricula Luer & Hirtz, *Icones Pleuroth.* 29, Part Three, Fig. 300.
Stelis vollesii Luer, *Icones Pleuroth.* 24, Part One, Fig. 36.

KEY II: The caespitose species of *Stelis* sect. *Humboldtia*, fewer than 8 centimeters tall.

1 Dorsal sepal 3-veined.
2 Raceme congested, horizontal; dorsal sepal much longer than wide, synsepal bifid, not concave..... *S. glossula*
2' Not the above combination.
3 Dorsal sepal up to 2 mm long; petals with margins thin
4 Lip thick, about as deep as long..... *S. buccella*
4' Lip thin with the dorsum slopping..... *S. tricula*
3' Dorsal sepal 3 mm or more long; petals with margins not thick.
5 Petals triangular, acute..... *S. vollesii*
5' Petals ovate to triangular with the apex broadly rounded.
6 Stigmatic processes elongate
7 Stigmas with a hornlike process..... *S. odobenella*
7' Stigmas with an elongate, obtuse process..... *S. brachiata*
6' Stigmatic processes not elongate
8 Petals elongate, triangular
9 Petals acute with thin, irregular margins..... *S. nycterina*
9' Petals obtuse with thick margins..... *S. globiflora*
8' Petals transverse, more or less oblong
10 Synsepal bifid, minimally concave
11 Raceme erect, strict, simultaneously flowered..... *S. distans*
11' Raceme pendent, flexuous, successively flowered..... *S. sanchezii*
10' Synsepal distinctly concave
12 Sepals densely pubescent within..... *S. bucculenta*
12' Sepals not densely pubescent within
13 Raceme strict, simultaneously flowered..... *S. memorialis*
13' Raceme flexible, more or less arching, successively flowered
14 Leaf broadly elliptical, minutely verrucose..... *S. galeola*
14' Leaf elliptical, smooth
15 Lip with the bar tall, the dorsum sloping downward with an erect callus..... *S. opercularis*
15' Lip with the bar prominent, the dorsum with a round callus

16 Rachis flexuous; petals without an obvious transverse callus..... ..... *S. flexilis*
16' Rachis not flexuous; petals with a distinct transverse callus..... ..... *S. sumacoënsis*
1' Dorsal sepal 5- to 7-veined
17 Inflorescence 1-flowered..... *S. ann-jesupiae*
17' Inflorescence 2- to many-flowered
18 Petals fimbriate
19 Dorsal sepals ca. 10 mm long; lip with subacute basal angles.....*S. dactyloptera*
19' Dorsal sepals ca. 6 mm long; lip with elongated basal angles.....*S. florianii*
18' Petals entire
20 Sepals semiconnate, recurved above the middle.....*S. delhierroi*
20' Sepals not semiconnate and recurved above the middle
21 Leaf narrowly elliptical, acute to subacute
22 Inflorescence longer than the leaf; synsepal shallowly concave.....*S. patens*
22' Inflorescence shorter than the leaf; synsepal deeply concave ..... *S. jatunyacuënsis*
21' Leaf broadly elliptical, obtuse to rounded
23 Leaf ca. 3 cm wide; lip with bar high, callus large, rounded.....*S. thoerleae*
23' Leaf ca. 1.5 cm wide; lip with bar low bar, callus small, pubescent..... ..... *S. embreei*

About 60 species of *Stelis* sect. *Humboldtia* are more than 8 centimeters tall, excluding the inflorescence. They are listed below, followed by their appearance within the *Icones Pleurothallidinarum* series.

Stelis acutilabia Luer & Hirtz, *Icones Pleuroth.* 24, Part One, Fig. 5.
Stelis aequoris Luer, new sp., *Icones Pleuroth.* 30, Part Four, Fig. 308.
Stelis aernbyae Luer & Dalström, *Icones Pleuroth.* 26, Part Two, Fig. 131.
Stelis allenii L.O. Williams, *Icones Pleuroth.* 30, Part Four, Fig. 309.
Stelis alpina Luer & Hirtz, *Icones Pleuroth.* 26, Part Two, Fig. 105., **S. purpurea**
Stelis applanata Luer & Hirtz, *Icones Pleuroth.* 24, Part One, Fig. 8.
Stelis aviceps Lindl., *Icones Pleuroth.* 30, Part Four, Fig. 310., 310a.
Stelis bivalvis Luer & Hirtz, *Icones Pleuroth.* 24, Part One, Fig. 9.
Stelis bolivarensis Luer & Hirtz, *Icones Pleuroth.* 24, Part One, Fig. 10.
Stelis cajanumae Luer & Hirtz, *Icones Pleuroth.* 26, Part Two, Fig. 107., **S. coelica**
Stelis coeliaca Luer & Hirtz, *Icones Pleuroth.* 24, Part One, Fig. 12.
Stelis condorensis Luer & Hirtz, *Icones Pleuroth.* 26, Part Two, Fig. 146.
Stelis cryptochila Garay, Canad. J. Bot. 34: 355, 1956., **S. aviceps**
Stelis depauperata Lindl., *Icones Pleuroth.* 29, Part Three, Fig. 253a., as *S. graminosa*
Stelis distans Luer & Hirtz, *Icones Pleuroth.* 24, Part One, Fig. 49.
Stelis dromedarina Luer & Hirtz, *Icones Pleuroth.* 24, Part One, Fig. 14.
Stelis elatissima, Luer & Hirtz, *Icones Pleuroth.* 29, Part Three, Fig. 249.
Stelis fissurata Luer & Hirtz, *Icones Pleuroth.* 24, Part One, Fig. 16.
Stelis flacca Rchb.f., *Icones Pleuroth.* 30, Part Four, Fig. 316.
Stelis flava Luer & Hirtz, *Icones Pleuroth.* 24, Part One, Fig. 17.
Stelis frontinoënsis O.Duque, *Icones Pleuroth.* 26, Part Two, Fig. 127, as *S. venusta*
Stelis gastrodes Luer & Hirtz, new sp., *Icones Pleuroth.* 30, Part Four, Fig. 317.
Stelis glossulicles Luer & Hirtz, *Icones Pleuroth.* 29, Part Three, Fig. 215., **S. megaloglossa**

Stelis graminosa Luer & Hirtz, *Icones Pleuroth.* 29, Part Three, Fig. 253., **S. depauperata**
Stelis guatemalensis Schltr., *Icones Pleuroth.* 30, Part Four, Fig. 321., 321a.
Stelis ingridiana Luer & Hirtz, *Icones Pleuroth.* 26, Part Two, Fig. 112.
Stelis jimburae Luer & Hirtz, *Icones Pleuroth.* 24, Part One, Fig. 64.
Stelis langlassei Schltr., *Icones Pleuroth.* 30, Part Four, Fig. 323., 323a., 323b.
Stelis lapoi Luer & Hirtz, *Icones Pleuroth.* 29, Part Three, Fig. 217.
Stelis listrophylla Luer & Hirtz, *Icones Pleuroth.* 26, Part Two, Fig. 113.
Stelis luteola Luer & Hirtz, *Icones Pleuroth.* 26, Part Two, Fig. 114.
Stelis luteria Luer & Hirtz, *Icones Pleuroth.* 24, Part One, Fig. 21., as *S. santiagoi*
Stelis manabina Dodson & Garay, *Icones Pleuroth.* 30, Part Four, Fig. 327a., **S. nutans**
Stelis megaloglossa Luer & Hirtz, *Icones Pleuroth.* 29, Part Three, Fig. 215., as *S. glossulicles*
Stelis multiflora Luer & Hirtz, *Icones Pleuroth.* 26, Part Two, Fig. 116.
Stelis nana Lindl., *Icones Pleuroth.* 30, Part Four, Fig. 326.
Stelis nigrescens Luer & Hirtz, *Icones Pleuroth.* 29, Part Three, Fig. 218.
Stelis nutans Lindl., *Icones Pleuroth.* 30, Part Four, Fig. 327., 327a.
Stelis paradisicola Luer & Hirtz, *Icones Pleuroth.* 29, Part Three, Fig. 276.
Stelis pardipes Rchb.f., *Icones Pleuroth.* 30, Part Four, Fig. 330., 330a.
Stelis parvipetala Luer & Hirtz, *Icones Pleuroth.* 24, Part One, Fig. 23., **S. coeliaca**
Stelis patinaria Luer & Hirtz, *Icones Pleuroth.* 24, Part One, Fig. 25.
Stelis pedanocaulon Luer & Hirtz, *Icones Pleuroth.* 26, Part Two, Fig. 118.
Stelis pelycophora Luer & Hirtz, *Icones Pleuroth.* 29, Part Three, Fig. 219.
Stelis platypetala Luer & Dalström, *Icones Pleuroth.* 24, Part One, Fig. 26.
Stelis preclara Luer & Hirtz, *Icones Pleuroth.* 24, Part One, Fig. 27.
Stelis pristis Luer, *Icones Pleuroth.* 30, Part Four, Fig. 333.
Stelis purpurea (Ruiz & Pav.) Willd., *Icones Pleuroth.* 26, Part One, Fig. 29., as *S. repanda*; Part Two, Fig. 105. as *S. alpina*.
Stelis regina Luer & Hirtz, *Icones Pleuroth.* 24, Part One, Fig. 28.
Stelis repanda Luer & Hirtz, *Icones Pleuroth.* 24, Part One, Fig. 29., **S. purpurea**
Stelis rosamariae Luer & Hirtz, *Icones Pleuroth.* 24, Part One, Fig. 30.
Stelis santiagoi Luer & Hirtz, *Icones Pleuroth.* 24, Part One, Fig. 32., **S. luteria**
Stelis scaphoglossa Luer & Hirtz, *Icones Pleuroth.* 26, Part Two, Fig. 120.
Stelis scopulosa Luer & Hirtz, new sp,, *Icones Pleuroth.* 30, Part Four, Fig. 335.
Stelis singularis Luer & Hirtz, new sp., *Icones Pleuroth.* 30, Part Four, Fig. 336.
Stelis situlifera Luer & Hirtz, *Icones Pleuroth.* 24, Part One, Fig. 33.
Stelis sparsiflora Luer & Hirtz, *Icones Pleuroth.* 29, Part Three, Fig. 220., **S. pelycophora**
Stelis strobilacea Luer, *Icones Pleuroth.* 29, Part Three, Fig. 221.
Stelis surrogatilabia Luer & Hirtz, *Icones Pleuroth.* 26, Part Two, Fig. 121.
Stelis tarda Luer & Hirtz, *Icones Pleuroth.* 26, Part Two, Fig. 122.
Stelis teaguei Luer & Hirtz, *Icones Pleuroth.* 26, Part Two, Fig. 123.
Stelis tenuifolia Luer & Hirtz, *Icones Pleuroth.* 26, Part Two, Fig. 124.
Stelis tobarii Luer & Hirtz, new sp., *Icones Pleuroth.* 30, Part Four, Fig. 338.
Stelis valladolidensis Luer & D'Alessandro, new sp., *Icones Pleuroth.* 30, Part Four, Fig. 340.
Stelis velivolva Luer & Hirtz, *Icones Pleuroth.* 24, Part One, Fig. 35.
Stelis velutina Lindl., *Icones Pleuroth.* 30, Part Four, Fig. 341.
Stelis venosa Luer & Endara, *Icones Pleuroth.* 26, Part Two, Fig. 126.
Stelis venusta Luer & Hirtz, *Icones Pleuroth.* 26, Part Two, Fig. 127., **S. frontinoënsis**
Stelis vulcani Rchb.f., *Icones Pleuroth.* 30, Part Four, Fig. 342., 342a.

KEY III: The caespitose species of *Stelis* sect. *Humboldtia*, more than 8 centimeters tall.

1 Dorsal sepal 3-veined
 2 Raceme with flowers produced successively
  3 Raceme surpassing the leaf, flowers produced slowly, buds and fruit produced simultaneously ..... *S. tarda*
  3' Raceme shorter than the leaf, buds and fruit not simultaneous.....*S. dromedarina*
 2' Raceme with flowers produced simultaneously
  4 Petals and lip acute
   5 Lip with a narrowly triangular tip longer than the blade.....*S. pardipes*
   5' Lip with an apiculum shorter than the blade.....*S. guatemalensis*
  4' Petals and lip not acute
   6 Raceme shorter, or barely as long as the leaf
    7 Racemes multiple; lip with apex broadly triangular.....*S. multiflora*
    7' Raceme solitary; lip with apex narrowly triangular.....*S. valladolidensis*
   6' Racemes longer than the leaf
    8 Leaf slender, up to 1 cm wide
     9 Lip with the bar cleft more than half the dorsum.....*S. fissurata*
     9' Lip with the bar not cleft
      10 Lateral sepals connate to the apex.....*S. depauperata*
      10' Lateral sepals semiconnate
       11 Raceme less than 10 cm long.....*S. distans*
       11 Raceme more than 20 cm long.....*S. elatissima*
    8' Leaf more than 1 cm wide
     12 Synsepal with a deep, retrorse mentum.....*S. gastrodes*
     12' Synsepal without a retrorse mentum
      13 Sepals densely long-pubescent within.....*S. scopulosa*
      13' Sepals glabrous, minutely or shortly pubescent within
       14 Lip not deeply concave
        15 Sepals 3-3.5 mm long.....*S. nutans*
        15' Sepals 4-8 mm long
         16 Raceme densely flowered; lip not longer than wide.....*S. vulcani*
         16' Raceme loosely flowered; lip longer than wide.....*S. condorensis*
       14' Lip deeply concave
        17 Lip with apex shortly triangular.....*S. scaphoglossa*
        17' Lip with apex protuberant, triangular.....*S. vulcani*
1' Dorsal sepal 5- or more-veined
 18 Dorsal sepal 5- to 7-veined
  19 Mature inflorescence shorter than, to about as long as the leaf
   20 Petals broad with an apiculum.....*S. langlassei*
   20' Petals without an apiculum
    21 Plants ca. 10 cm tall; dorsal sepal ca. 4 mm long
     22 Dorsal sepal longer than broad.....*S. nana*
     22' Dorsal sepal broader than long.....*S. bivalvis*
    21' Plants 15-20 cm tall; dorsal sepal 6-14 mm long
     23 Synsepal deeply concave
      24 Petals 1-veined .....*S. singularis*
      24' Petals 3-veined
       25 Dorsal sepal ca. 14 mm long; lip with the margin thin.....*S. teaguei*
       25' Dorsal sepal ca. 8 mm long; lip with the margin broad and flat.*S. velivolva*

23' Synsepal flat with a small, central, shallow mentum.....*S. jimburae*
19' Mature inflorescence longer than the leaf
26 Flowers produced slowly, successively, buds and fruit produced simultaneously. ..... *S. paradisicola*
26' Raceme with few to many flowers open simultaneously
27 Dorsal sepal and synsepal spread about 180°
28 Synsepal with a central, papillose callus.....*S. surrogatilabia*
28' Synsepal without a callus
29 Synsepal flat with a small, central, shallow mentum
30 Leaf broadly ovate, ca. 10 cm wide.....*S. listrophylla*
30' Leaf elliptical or ovate, less than 3 cm wide
31 Petals meet above column and below lip; lip with dorsum sloping down ward .....*frontinoënsis*
31' Petals not meeting above column and below lip; lip not with the dorsum sloping downward
32 Synsepal longer than broad.....*S. applanata*
32' Synsepal broader than long.....*S. aequoris*
29' Synsepal concave
33 Synsepal shallowly concave with a shallow mentum
34 Lip deep with a protruding bar.....*S. ingridiana*
34' Lip shallow without a protruding bar.....*S. patinaria*
33' Synsepal deeply concave with a deep mentum
35 Lip with apex broadly rounded with flat margin, with the bar protuberant.. ..... *S. coeliaca*
35' Lip with apex obtuse with thin margin, with the bar not prominent..... ..... *S. pelycophora*
27' Dorsal sepal and synsepal spread less than 180° (ca. 60-135°)
36 Lateral sepals partially connate; lip with the dorsum sloping downward
37 Leaf ovate, long-petiolate; lip with dorsum without a callus.....*S. tobarii*
37' Leaf elliptical, short-petiolate; lip with dorsum tricallous.....*S. aernbyae*
36' Lateral sepals connate to, or nearly to the apex, into a synsepal; lip with the dorsum not sloping downward
38 Synsepal shallowly concave
39 Dorsal sepal connate to the synsepal ca. 1/3 the length; lip oblong with rounded tip ..... *S. pristis*
39' Dorsal sepal shallowly connate to the synsepal, less than 1/3 the length
40 Dorsal sepal proportionately large; lip type-B.....*S. megaloglossa*
40' Dorsal sepal not proportionately large relative to the synsepal; lip type-A
41 Floral bracts projecting beyond the flowers.....*S. nigrescens*
41' Floral bracts not projecting beyond the flowers
42 Leaves less than 1 cm wide; dorsal sepal 5 mm long.....*S. tenuifolia*
42' Leaves more than 1 cm wide
43 Dorsal sepal 3-4 mm long; synsepal broader than long.....*S. aviceps*
43' Dorsal sepal 6-10 mm long; synsepal not broader than long..... ..... *S. purpurea*
38' Synsepal deeply concave
44 Petals overlapping above the column
45 Dorsal sepal ca. 15 mm long, 7-veined.....*S. flava*
45' Dorsal sepal ca. 7 mm long, 5-veined.....*S. lapoi*

44' Petals not overlapping above column
46 Synsepal with recurving margins
47 Dorsal sepal 10-13 mm long.....*S. luteria*
47' Dorsal sepal 5-8 mm long
48 Sepals minutely papular-pubescent.....*S. velutina*
48' Sepals glabrous, minutely cellular pubescent at most.....*S. vulcani*
46' Synsepal with erect margins
49 Ramicaul less than one third as long as the leaf.....*S. pedanocaulon*
49' Ramicaul at least half as long as the leaf
50 Floral bracts far surpassing the flowers.....*S. strobilacea*
50' Floral bracts not surpassing the flowers
51 Synsepal deeper than wide.....*S. situlifera*
51' Synsepal not deeper than wide
52 Petals broad and flat; lip obtuse, minutely apiculate.....*S. platypetala*
52' Petals not broad and flat; lip not apiculate
53 Lip with margin broad and flat.....*S. velivolva*
53' Lip not with margin deep and flat
54 Lip triangular, acute, acuminate.....*S. acutilabia*
54' Lip not triangular, acute, acuminate
55 Lip with margin broad with the bar tall.....*S. flacca*
55' Lip not with margin broad and without a tall bar
56 Synsepal with a deep, retrorse mentum.....*S. bolivarensis*
56' Synsepal without a deep, retrorse mentum
57 Dorsal sepal acute, 6-10 mm long.....*S. purpurea*
57' Dorsal sepal obtuse, less than 4 mm long
58 Plant more than 10 cm tall; synsepal transversely obtuse.....
.....*S. aviceps*
58' Plant less than 10 cm tall; synsepal not transversely obtuse...
.....*S. luteola*
18' Dorsal sepal 9- to 11-veined
59 Dorsal sepal triangular, acute, usually more than 13 mm long.....*S. allenii*
59' Dorsal sepal not triangular, less than 13 mm long
60 Synsepal transversely concave with the apices not in apposition.....*S. venosa*
60' Synsepal shallowly concave with the apices in apposition
61 Petals and lip with margins broad and flat.....*S. rosamariae*
61' Petals and lip not with margins broad and flat
62 Floral bracts protruding beyond the flowers.....*S. nigrescens*
62' Floral bracts not protruding beyond the flowers
63 Petals with a flat margin.....*S. preclara*
63' Petals with a thick, fleshy, rounded margin.....*S. regina*

Twenty-three non-caespitose (repent, scandent and prolific) species of *Stelis* sect. *Humboldtia*, regardless of height. They are listed below, followed by their appearance within the *Icones Pleurothallidinarum* series.

Stelis abdita Luer, new sp., *Icones Pleuroth.* 30, Part Four, Fig. 307.
Stelis anthracina Luer & Hirtz, *Icones Pleuroth.* 24, Part One, Fig. 7.
Stelis bicornis Lindl., *Icones Pleuroth.* 30, Part Four, Fig, 311., 311a.
Stelis biserrula Lindl., *Icones Pleuroth.* 30, Part Four, Fig, 312.
Stelis brevilabris Lindl., *Icones Pleuroth.* 24, Part One, Fig. 99., as *S. serpens*.

Stelis corniculata Luer & Hirtz, *Icones Pleuroth.* 26, Part Two, Fig. 108.,108a.
Stelis dialissa Rchb.f., *Icones Pleuroth.* 30, Part Four, Fig, 314.
Stelis digitata Luer & Hirtz, *Icones Pleuroth.* 24, Part One, Fig. 13.
Stelis elongata Kuntz, *Icones Pleuroth.* 30, Part Four, Fig. 315., 315a.
Stelis fortis Luer & Dalström, *Icones Pleuroth.* 26, Part Two, Fig. 110.
Stelis glomerosa Luer, *Icones Pleuroth.* 30, Part Four, Fig. 319.
Stelis inflata Luer, *Icones Pleuroth.* 29, Part Three, Fig. 216.
Stelis maniola Luer & Hirtz, *Icones Pleuroth.* 26, Part Two, Fig. 101.
Stelis maxima Lindl., *Icones Pleuroth.* 30, Part Four, Fig. 324.
Stelis mucronata Lindl., *Icones Pleuroth.* 30, Part Four, Fig. 325.
Stelis neudeckeri Luer & Dodson, *Icones Pleuroth.* 26, Part Two, Fig. 117.
Stelis piperina Lindl., *Icones Pleuroth.* 30, Part Four, Fig. 331.
Stelis pollex Luer & Hirtz, new sp., *Icones Pleuroth.* 30, Part Four, Fig. 332.
Stelis propagans Luer & Hirtz, *Icones Pleuroth.* 26, Part Two, Fig. 119.
Stelis pugiunculi Lindl., *Icones Pleuroth.* 30, Part Four, Fig. 334.
Stelis saccata Luer & Hirtz, *Icones Pleuroth.* 24, Part One, Fig. 2.
Stelis serpens Luer & Hirtz, *Icones Pleuroth.* 24, Part One, Fig. 99., **S. brevilabris**.
Stelis stiriosa Luer & Dalström, new sp., *Icones Pleuroth.* 30, Part Four, Fig. 337.
Stelis triseta Lindl., Folia Orchid. *Stelis* 17(126), 1858., **S. bicornis**
Stelis truncata Lindl., *Icones Pleuroth.* 30, Part Four, Fig. 339.

KEY IV: The noncaespitose species of *Stelis* sect. *Humboldtia*.

1 Habit prolific, a ramicaul borne from the apex of a ramicaul
2 Dorsal sepal 3- to 5-veined
3 Petals and lip acute, apiculate or subulate
4 Sepals deeply connate and inflated into a suborbicular sepaline tube ..... *S. glomerosa*
4' Sepals not deeply connate and inflated
5 Petals broad, rounded with a minute apiculum..... *S. pugiunculi*
5' Petals not broad, rounded with a minute apiculum
6 Petals and lip with the tip acute, triangular..... *S. mucronata*
6' Petals and lip with a subulate apiculum
7 Habit robust; dorsal sepal 6-8 mm long..... *S. bicornis*
7' Habit not robust; dorsal sepal 3-4 mm long..... *S. biserrula*
3' Petals and lip neither acute nor apiculate
8 Raceme slowly successively flowered with fruit and flowers simultaneous ..... *S. anthracina*
8' Raceme simultaneously flowered
9 Synsepal with a central mentum; lip with apex triangular, acute..... *S. propagans*
9' Synsepal without a central mentum; lip not acute
10 Dorsal sepal ca. 3 mm long; synsepal 2 mm long, broadly inflated.... *S. inflata*
10' Dorsal sepal ca. 5 mm long; synsepal concave, not broadly inflated
11 Ramicauls slender; lip with the length thin..... *S. digitata*
11' Ramicauls rigid, stout; lip with the length, width and depth thick. *S. truncata*
2' Dorsal sepal ca. 11-veined
12 Synsepal deeply concave with retrorse mentum..... *S. neudeckeri*
12' Synsepal broadly concave without a retrorse mentum
13 Synsepal 9-10 mm long, acute at the apex..... *S. fortis*
13' Synsepal 12-18 mm long, broadly rounded at the apex..... *S. maxima*

1' Habit repent, ascending
14 Ramicauls and inflorescence erect
15 All 3 sepals connate basally into a cup or short tube
16 Sepals subcircular, connivent into a suborbicular flower.....*S. abdita*
16 Sepals not connivent into a suborbicular flower
17 Floral bracts elongate, conspicuous.....*S. dialissa*
17' Floral bracts inconspicuous, not elongate
18 Sepals ca. 4 mm long; lip with protruding bar with the dorsum sloping downward.....*S. maniola*
18' Sepals ca. 10 mm long; lip with the dorsum tricallous.....*S. saccata*
15' Dorsal sepal connate basally into a bilabiate flower
19 Lip with the middle lobe elongate, narrowly triangular.....*S. elongata*
19' Lip with the middle lobe not narrowly triangular
20 Lip with the middle lobe obtuse, about as long as the body of the lip.....*S. brevilabris*
20' Lip with the middle lobe acute, shorter than the body of the lip.....*S. corniculata*
14' Ramicauls ascending, descending to pendent; inflorescence pendent
21 Leaf elliptical, obtuse; petal with margin undulating.....*S. piperina*
21' Leaf ovate, acute; petal not with margin undulating
22 Dorsal sepal obovte with rounded apex.....*S. pollex*
22' Dorsal sepal narrowly oblong, obtuse.....*S. stiriosa*

307. Stelis abdita Luer, sp. nov.

Ety.: From the Latin *abtitus*, "hidden," referring to the central apparatus hidden within the flower.

Planta parva erecta ascendens, racemo stricto subdense minutifloro foliis anguste ellipticis crassis longiore, bracteis floralibus proportione elongatis acutis, sepali circularibus in florem orbiculari conniventibus, petalis uninervis et labello subquadrato apiculato.

Plant small, epiphytic, ascending; roots slender. Ramicauls erect, relatively stout, produced above the base of a ramicaul, 15-25 mm long, enclosed by a tubular sheath from below the middle and 2-3 other sheaths at the base. **Leaf** erect, thickly coriaceous, narrowly elliptical, acute, 20-25 mm long, 3-3.5 mm wide, 2 mm thick, gradually narrowed below into a subpetiolate base. **Inflorescence** an erect, subcongested, several-flowered raceme, to 35 mm long including the peduncle ca. 10 mm long, subtended by a spathe 2 mm long, from an annulus within the cauline sheath; floral bracts oblique, acute, 2 mm long, protruding; pedicels 1 mm long; ovary 0.6 mm long; **sepals** yellow-green, glabrous, fleshy, subcircular, concave, the dorsal sepal antrorse, 1.75 mm long, 1.5 mm wide, 3-veined, connate about a fourth the length to the lateral sepals, the lateral sepals connate about a third the length, connivent to the tips into a concave, ovoid synsepal, 1.8 mm long, each lateral sepal 1.5 mm wide, 3-veined; **petals** purple, membranous, cuneate, truncate, 0.6 mm long, 0.6 mm wide, 1-veined, shallowly concave, with the margin slightly thickened; **lip** purple, subquadrate, apparent length 1 mm, 0.75 mm wide, 0.4 mm deep (the true length), the apex truncate, with a small, triangular apiculum, concave before a bicallous bar and a broad glenion between, the dorsum shallowly concave before the densely pubescent base, hinged to the base of the column; **column** stout, 0.6 mm long, 0.75 mm wide, the foot obsolescent, the anther and the bilobed stigma apical.

ECUADOR: **Cotopaxi**: Cerro Azul, alt. 3680 m, 27 July 2003, *J.E. Ramos, J. Contreras, L.H. Ramos, A. & R. Tigse 6620* (Holotype of *S. abdita*: CUVC; Isotype: MO), C. Luer illustr. 21306.

This small species is known from only the original collection. It is distinguished by an erect, ascending habit; thick, narrow leaves; and a slender raceme with prominant floral bracts with tiny, orbicular flowers. The round and concave sepals are weakly connate, the laterals to near the tips to create a semiorbicular synsepal; the petals are single-veined; and the lip is oblong with a short apiculum.

Vegetatively, *Stelis abdita* is similar to *Stelis spathulata* Poepp. & Endl. of section *Stelis*. The petals and lip of the two species also share similarities, but the connivent, circular, concave sepals of *S. abdita* create the artificial separation.

308. **Stelis aequoris** Luer & Hirtz, sp. nov.

Ety.: From the Latin *aequor*, "a level surface," referring to the gaping flower.

Inter species sect. *Humboldtiae*, planta mediocris caespitosa, racemo folio anguste ovato petiolato longiore, flore ringenti aequori, synsepalo expanso ad centrum concavo distinguitur.

Plant medium in size, epiphytic, caespitose; roots slender. Ramicauls erect, slender, 7-8 cm long, the middle third enclosed by a tubular sheath, 1-2 sheaths about the base. **Leaf** erect, coriaceous, narrowly ovate, acute, petiolate, 7-8 cm long including the petiole 2 cm long, the blade 1.2 cm wide in the dry state, cuneate below into the slender petiole. **Inflorescence** a loose, successively, many-flowered raceme with several flowers open simultaneously, to 13-14 cm long including the peduncle 2-4 cm long, with a spathe 8-10 mm long, from an annulus below the apex of the ramicaul; floral bracts oblique, infundibular. acute, 2.5-3 mm long; pedicels 1 mm long; ovary 1.5 mm long; **sepals** yellow, glabrous, the dorsal sepal triangular-ovate, acute, 8 mm long, 7 mm wide, 5-veined, connate to the lateral sepals 2 mm, the lateral sepals connate into a transversely ovoid synsepal, broadly obtuse at the apex, 5 mm long, 9 mm wide expanded, 6-veined, concave centrally below the lip; **petals** yellow, transversely lunate, concave below the transverse callus, very shallowly concave within the thick rounded margin, 1 mm long, 1.8 mm wide, 3-veined; **lip** yellow, thick, transversely oblong-lunate, 0.8 mm long, 1.25 mm wide, 1 mm deep, concave anteriorly within the broadly obtuse, apical margin, the bar with thickened margins separated medially by a small glenion continuous with a large, rounded callus on the dorsum, the base truncate, hinged to the obsolescent column-foot; **column** stout, 1 mm long, 1.25 mm wide, with the anther and bilobed stigma apical.

ECUADOR: **Zamora-Chinchipi**: epiphytic in scrub cloud forest east of the pass east of Loja, alt. 2500 m, 21 Jan. 1992, *C. Luer, J. Luer, A. & P. Jesup, & A. Hirtz 16085* (Holotype of *S. aequoris*: MO).

This species is from the area east of Loja in southern Ecuador known for the abundance of species of pleurothallids. It differs from other members of section *Humboldtia* with the small habit; an acute, narrowly ovate, long-petiolate leaf; and a loose, many-flowered raceme of medium-sized, yellow flowers. The synsepal spreads 180° from the dorsal sepal to create a more or less flat flower. The synsepal is concave only centrally. The petals are deeply concave below the transverse callus, and only barely concave above that below the broadly rounded margin. The lip is type-A, concave behind a broadly rounded margin, and the bar is interrupted by the glenion that is continuous with a rounded, dorsal callus.

309. **Stelis allenii** L.O. Williams, Ann. Missouri Bot. Gard. 29: 338, 1942.

Ety.: Named for Paul Hamilton Allen (1911-1963) of the Missouri Botanical Garden, who first collected this species in Panama.

Plant large, epiphytic, caespitose; roots slender. Ramicauls erect, stout, 5-17 cm long, enclosed by a loose, tubular sheath near the middle and 2-3 other sheaths at the base. **Leaf** erect, thickly coriaceous, elliptical, subacute to obtuse, 7-22 cm long, 3-7 cm wide, cuneate below into the subpetiolate or shortly petiolate base. **Inflorescence** an erect, congested, distichous, many-flowered raceme with many flowers open simultaneously, 15-40 cm long including the peduncle 8-12 cm long, subtended by a spathe 1-2.5 cm long, from an annulus below the apex of the ramicaul; floral bracts cordate, inflated, acute, 5-17 mm long; pedicels 4-8 mm long; ovary 2-5 mm long; flowers bilabiate; **sepals** glabrous, green suffused with purple to red-purple, the dorsal sepal erect, ovate, acute, 5-22 mm long, 5-9 mm wide, 5- to 11-veined, connate basally to the synsepal, the lateral sepals connate into a broadly ovate, shallowly concave synsepal, 5-16 mm long, 6-14 mm wide, 8- to 19-veined; **petals** purple, transversely cordate-ovate, 0.75-1 mm long, 1.5-2.5 mm wide, the apex rounded, broadly thickened, the base narrowly concave below a transverse callus; **lip** purple, transversely subquadrate, 1 mm long, 2 mm wide, 1.25 mm deep, the apex thick, broadly rounded with a thick, well-demarcated margin protruding below, the bar with a large glenion, the dorsum with a low, obscurely 3-lobed callous, the base truncate, hinged to the base of the column; **column** stout, 1 mm long, 2 mm wide, the foot obsolescent, the anther and the bilobed stigma apical.

PANAMA: **Coclé**: hills north of El Valle de Antón, alt. ca. 800 m, 10 Apr. 1942, *P. Allen 2952* (Holotype of *S. allenii*: MO; isotypes: AMES, K); Loma del Tigre, north of El Valle, alt. 3,000 ft., 6 July 1947, *P.H. Allen 5066* (AMES, SEL); above El Valle, alt. 1000 m, 6 Mar. 1976, cultivated 19 Sept. 1976, *C. Luer 1084* (SEL). **Colón**: Santa Rita lumber road, 27 Mar. 1968, *R.L. Dressler 3463* (SEL). **Chiriquí**: below Volcán, alt. 1000 m, collected Sept. 1976, flowered in cultivation 24 Mar. 1977, *C. Luer 1378* (SEL).

ECUADOR: **Pichincha**: Río Baba, south of Santo Domingo, alt. 300 m, 1 Nov. 1961, *C.H. Dodson & L.B. Thien 1157* (SEL); above Tinalandia, alt. ca. 900 m, collected by C. Luer, Aug. 1975, flowered in cultivation, 11 Feb. 1977, *C. Luer 1374* (SEL); Cooperativa Santa Marta, Río Verde, southeast of Santo Domingo, alt. 530 m, 5 Feb. 1979, *C.H. Dodson 7402* (SEL); above Chiriboga, alt. ca. 2000 m, collected by A. Hirtz, Feb. 1982, flowered in cultivation 27 Dec. 1982, *C. Luer 8509* (SEL); Santa Rosa de Toachi, alt. 1300 m, Mar. 1990, *A. Hirtz, X. Hirtz & K.H. Baumann 4674* (MO); near Mindo, cultivated by H. Oñate in Mindo, 9 Mar. 2001, *C. Luer 19880* (MO). **Cotopaxi**: between Quevedo and Latacunga, Tenefuerte, Río Pilaló, alt. 750-900 m, 14 Oct. 1981, *C.H. Dodson & P.M. Dodson 11893* (SEL). **Los Ríos**: Río Palenque Biological Station, alt. 150-220 m, 26 Oct. 1974, *C.H. Dodson 5700* (SEL).

Superficially similar to the Andean *Stelis maxima* Lindl., with which it has been confused, this large species is variable in size in its wide distribution. In central Panama it occurs in the province of Coclé, and in Ecuador it is occurs on the western slopes of Pichincha at relatively low altitudes. From *S. maxima* it differs by a caespitose, non-proliferating habit, a more congested raceme with longer bracts, a shorter spathe, and a narrower dorsal sepal.

Stelis allenii is a robust, caespitose species with stout ramicauls clad in a large, loose sheath. The leaf is large and leathery with the base subsessile or shortly petiolate. The inflorescence is a tall, erect, congested raceme with large, prominent, purple, floral bracts. The size of the flowers varies on the same raceme from large below to small above. The multi-veined dorsal sepal is triangular and acute, sometimes exceeding two centimeters in length. The synsepal is broad and shallowly concave. The petals are semilunate with a broadly rounded, thick margin. The lip is subquadrate-triangular, shallowly concave with a narrow glenion, and with a thick, broadly rounded apex. The marginal thickening is well-demarcated as a curved edge beneath the body of the lip. This zone of transition between two thicknesses is not present on the lip of *Stelis maxima*.

310., 310a. Stelis aviceps Lindl., Folia Orchid. *Stelis* 16(121), 1858.

Ety.: From the Latin *aviceps*, "bird-headed," in allusion to an unexpanded flower.

Syn.: *Stelis cryptochila* Garay, Canad. J. Bot. 34: 355, 1956.

Ety.: From the Greek *cryptocheilos*, "a hidden lip," referring to the labellum.

Plant small to medium in size, epiphytic, caespitose; roots slender. Ramicauls erect, slender, 2-4 cm long, enclosed by a tubular sheath, and another 1-2 at the base. **Leaf** erect, coriaceous, elliptical-ovate, subacute to obtuse, petiolate, 5-10 cm long including a petiole 1.5-2 cm long, 2-2.5 cm wide, cuneate below into the petiole. **Inflorescence** 1-3 erect, sublax, secund, nearly simultaneously many-flowered racemes, 10-18 cm long including the peduncle ca. 5 cm long, with a spathe ca. 7 mm long, from an annulus below the apex of the ramicaul; floral bracts oblique, acute, 3-5 mm long; pedicels 1.5 mm long; ovary 2 mm long; flowers yellow-green to purple, bilabiate; **sepals** glabrous, microscopically ciliate within, the dorsal sepal erect, broadly ovate, obtuse, 3.5-5 mm long, 3.5-5 mm wide, 5-(7-)veined, connate basally to the synsepal for 1 mm, the lateral sepals connate into a transversely ovoid, concave synsepal, 2-4 mm long, 5 mm wide expanded, 10-veined; **petals** transversely semilunate, shallowly concave, with the apex broadly obtuse, thick on the margin, concave basally, 1.25 mm long, 1.75 mm wide, 3-veined; **lip** thickly triangular, obtusely rounded at the apex, 0.75 mm long, 1.25 mm wide, 0.75 mm deep, the anterior surface shallowly concave, the bar with a small, marginal glenion, the dorsum shallowly concave with a broad, rounded callous, the base truncate, hinged to the base of the column; **column** stout, 1 mm long, 1 mm wide, the foot obsolescent, the anther and the bilobed stigma apical.

Representatve collections selected from many:

ECUADOR: **Pichincha**: Andes of Quito, *W. Jameson s.n.* (Holotype of *S. aviceps*: K); old road between Quito and Santo Domingo, alt. 2200, 17 Aug. 1975, *C. Luer, G. Luer & S. Wilhelm 389* (SEL); road to Mindo, alt. ca. 2000 m, 1 Feb. 1978, *C. Luer & J. Luer 2375* (MO).

Napo: junction of Baeza-Lago Agrio road with Río Azuela, alt. 1740, 21-25 Oct. 1971, *B. MacBryde 771, 837* (AMES); between Baeza and Tena, Hda. Guacamayos, alt. 2000 m, 6 Nov. 1980, *G. Harling & L. Andersson 16306* (GB).

Pastaza: near Tena, alt. 400 m, 2-11 Apr. 1935, *Ynes Mexia 7190* (holotype of *S. cryptochila* Garay: AMES; isotype: US); between Baños and Puyo, alt. 1000 m, 18 Feb. 1962, *C.H. Dodson & L.B. Thien 2272* (SEL); below Río Negro, alt. 1500 m, 25 July 1975, *C. Luer, G. Luer & S. Wilhelm 378* (AAU, SEL).

Tungurahua: between Baños and Puyo, alt. 1600 m, 8 Oct. 1961, *C.H. Dodson & L.B. Thien 923* (SEL); Juivi, 20 km northeast of Baños, alt 2330 m, 7 Jan. 1962, *C.H. Dodson & L.B. Thien 1830* (SEL).
Morona-Santiago: along Río Yunganza below Limón, alt. 950 m, 17 Feb. 1986, *C. Luer, J. Luer, A. Hirtz, W. Flores & A. Embree 11861* (MO); Cordillera del Condor, east of Los Encuentros, alt. 1450 m, 4 Feb. 1987, *C. Luer, J. Luer & A. Hirtz 12818* (MO).
Loja: Loja-Zamora road, alt. 2300-2700 m, 16 Apr. 1974, *G. Harling & L. Andersson 14651* (GB); Cerro Villonaco, road to Catamayo, alt. 2700 m, 18 June 1979, *B. Løjtnant, A. & U. Molau 15091* (AAU).
Zamora-Chinchipe: between Loja and Zamora, alt. 1850 m, 21 Apr. 1973, *L. Holm-Nielsen, S. Jeppesen, B. Løjtnant & B. Ølgaard 4128* (AAU, AMES); Río Jamboe, road to Zumba, alt. 1400 m, 22 Apr. 1974, *G. Harling & L. Andersson 13868* (GB).
COLOMBIA: **Nariño**: western slopes of Pasto, near San Pablo, July 1879, *F.C. Lehmann s.n.* (W).
PERU: **Cajamarca**: between Chota and Tacabamba, alt. 2800 m, 19 Feb. 1983, *D. Smith & R. Vásquez M. 3578* (MO).
Junín: Chanchamayo, south of San Ramón, alt. 1700 m, 19 Oct. 1982, *D. Smith & M. Palacios 2656* (MO).

This species, closely related to the variable and widely distributed *Stelis purpurea* (Ruiz & Pav.) Willd, was named by Lindley for the resemblance of a closed flower to a bird-head, but this can apply to the whole genus. It is most easily distinguished from *S. purpurea* by a smaller habit, shorter floral bracts, smaller flowers, and an obtuse dorsal sepal instead of acute. However, numerous collections are intermediate, making many identifications doubtful or inaccurate.

Stelis aviceps is vegetatively variable, relatively frequent, and widely distributed from Colombia into Bolivia. It is characterized by small flowers with short floral bracts in a lax, many-flowered raceme that eventually far exceeds the leaf that is often oblong and obtuse. The dorsal sepal is broadly ovate, commonly 3.5 mm long, and usually five-veined, while the lateral sepals are connate into a shorter and more or less transversely ovate, concave synsepal. The petals are semilunate with a thick margin. The apex of the broad lip is obtusely rounded and shallowly concave, and with a low callus on the dorsum.

311., 311a. **Stelis bicornis** Lindl., Folia Orchid. *Stelis* 18(133), 1858.

Ety.: From the Latin *bicornis*, "two-horned," referring to the pair of petals. A more apopos name would have been "tricornis," because the lip is equally aristate.

Syn.: *Stelis triseta* Lindl., Folia Orchid. *Stelis* 17(126), 1858.
Ety.: From the Latin *triseta*, "three-bristled," referring to the aristate petals and lip.

Plant large, epiphytic, scandent; roots slender. Ramicauls ascending, stout, prolific, up to 25 cm long below to 4 cm long above, enclosed by a tubular sheath from below the middle and another sheath at the base. **Leaf** erect, coriaceous, narrowly elliptical, acute, petiolate, 4-10 cm long including the petiole 1-1.5 cm long, 1.5-3 cm wide, cuneate below into the petiole. **Inflorescence** an erect, subdense, distichous, many-flowered raceme with many flowers open simultaneously, 10-23 cm long including the peduncle 3-5 cm long, from an annulus below the apex of the ramicaul; floral bracts infundibular, 3-4 mm long; pedicels 2 mm long; ovary 1.5-2 mm long; flowers nutant, bilabiate, dorsal sepal commonly purple, synsepal commonly light green; **sepals** glabrous, the dorsal sepal erect, ovate, acute to subacute, 6-8 mm long, 2-4 mm wide, 3- to 5-veined, connate basally to the synsepal, the lateral sepals connate into a broadly ovate, deeply concave synsepal, 3.5-4.5 mm long, 3-4 mm wide unexpanded, 8-veined; **petals** commonly yellow or green, transversely oblong, long-apiculate, 0.5-0.75 mm long without the apiculum, 1-1.5 mm long with the apiculum, 1-1.25 mm wide, the base broadly truncate; **lip** commonly yellow or green, thick, subquadrate, long-apiculate, 0.6-0.75 mm long without the apiculum, 1 mm wide, the apex abruptly contracted into the subulate apiculum 0.75 mm long, 1.2-1.5 mm long with the apiculum, the disc broad, obscurely tricallous, with a shallow cavity on the anterior surface at the base of the apiculum, the base truncate, hinged to the base of the column; **column** stout, 0.75 mm long, 1 mm wide, the foot obsolescent, the anther and the stigma apical, the stigma bilobed.

Selected representive collections:
ECUADOR: **Pichincha**: Andes of Quito, Valley of Lloa, alt. 8,000 ft., 21 Jan. 1856, (R.108) *W. Jameson 490* (Holotype of *S. bicornis*: K; Isotypes: AMES, BM, G); near Quito, Mt. Pichincha, June 1864, *W. Jameson s.n.* (W); western slope of Pichincha, alt. 2800 m, 9 Dec. 1939, *E. Asplund 10091* (BR, G, K, S).
Carchi: between Tulcán and Maldonado, alt. 1700-2000 m, 21 Feb. 1978, *C. Luer, J. Luer & A. Hirtz 2646* (SEL).

Sucumbíos: El Playón de San Francisco, Cerro Mirador, alt. 3300 m, 28 Dec. 1980, *L. Holm-Nielsen, J. Jaramillo & F. Coello 29807* (AAU).
Imbabura: rocky cliffs, between Volcán Cotacachi and Apuela, alt. 2920 m, 1 Dec. 1975, *M.T. Madison & F.R. Coleman 2234* (AMES, SEL).
Napo: between Papallacta and Baeza, alt. 2800 m, 5 June 1973, *L. Holm-Nielsen, S. Jeppesen, B. Løjtnant & B. Ølgaard 6884* (AAU, AMES).
Cotopaxi: between Quevedo and Latacunga, west of Pilaló, alt. 2200-2350 m, 8 Apr. 1973, *L. Holm-Nielsen, S. Jeppesen, B. Løjtnant & B. Ølgaard 3209* (AAU, AMES, K, SEL).
Tungurahua: Volcán Tunurahua, alt. 2400 m, Oct. 1879, *F.C. Lemann 347* (AMES, G).
Chimborazo: above Facundo Vela, alt. 3000 m, 24 Mar. 1984 *C. Luer, S. Dalström & T. Höijer 9677, 9685* (MO).
Morona-Santiago: between Gualaceo and Limón, alt. 2150 m, 16 May 1988, *C. Luer et al. 13405* (MO).
Bolívar: pass north of Chillanes, alt. 2650 m, 25 Mar. 1984, *C. Luer, A. Hirtz, S. Dalström & T. Höijer 9727* (MO).
Azuay: Río Panjón, northeast of Sevilla de Oro, alt. 2600 m, 19 June 1979, *B. Løjtnant & E.U. Molau 15161* (AAU, GB).
Loja: Cerro Toledo, southeast of Yangana, alt. 2500 m, 7 Apr. 1985, *G. Harling & L. Andersson 23821* (GB);
PERU: **Amazonas**: Bagua, alt. 6,500 ft., 11 Aug. 1978, *P. Barbour 2841* (MO); Laguna Pomacochas, alt. 2250 m, 20 Mar. 1998, *H. van der Werff et al. 15239* (MO).
Cajamarca: San Ignacio, San José de Lourdes, alt. 2000 m, 18 Mar. 1997, *J. Campos & S. Corrales 3544* (MO).
San Martin: Roija. Buenos Aires, *H. van der Werff et al. 15350* (MO).
Huánuco: Muna-Macora-Chaglia woods, alt. unk., 20 Mar. 1965, *F. Woytkowski 5280* (MO).
Pasco: Cordillera Yanachaga, alt. 2450 m, 2 Mar. 1982, *A. Gentry & D. Smith 35978* (MO).
Cuzco: Convención, Hda. Potrero, Sapan-Sachayocc, alt. 2200 m, *C. Vargas 2552* (CUZ); Paucartambo, Pillahuanta, alt. 2800 m, *C. Vargas 4949* (CUZ).
BOLIVIA: **La Paz**: without locality, 1846, *Bridges s.n.* (holotype of *S. triseta*: K); Nor Yungas: Río Unduavi, alt. 2650 m, 29 Jan. 1980, *C. Luer, J. Luer & R. Vásquez 5008* (SEL).
Cochabamba: Chapare, old road from Cochabamba to Villa Tunari, alt. 2800 m, 1 Feb. 1997, *C. Luer, J. Luer, W. Teague, R. Vásquez & D. Ric 18373, 18374* (MO).

This large, robust, prolific species is widely distributed and frequent in the Andes of Ecuador, Peru, and Bolivia. It is the largest of those species with pointed petals and lip. The sepals of *Stelis bicornis* vary from six to eight millimeters long. The body of the petals is obtuse with the apex drawn out into a subulate process that points forward, the two together like a pair of horns flanking the column. The body of the lip is more or less quadrate with the apex drawn out into a similar, narrowly acute tip.

Lindley failed to note the aristate lip in his description of *Stelis bicornis*. A sketch at the bottom of the type sheet acurately shows the pointed petals, but the apex of the lip is drawn rounded. Hydration of a flower reveals long-pointed tips of both petals and also the lip.

A collection of this species from Bolivia was described simultaneously by Lindley (1858) and aptly named *Stelis triseta*. Similar plants with smaller leaves and smaller flowers were recognized by Lindley as *Stelis biserrula.* Plants with similar small leaves and flowers, but with merely acute petals and lip, were recognized as *Stelis mucronata* Lindl. (1858), An illustration of *S. biserrula* was correctly identified in *Venezuelan Orchids Illustrated*, but this same illustration in *Systematics of the Genus Stelis Sw.* (Garay, 1980) was identified as *S. triseta* (=*S. bicornis* Lindl.).

A similar plant with exceptionally broad, minutely apiculate petals was described by Lindley as *Stelis pugiunculi*. *Stelis corniculata* Luer & Hirtz, another related species is distinguished by a long-repent rhizome, nonprolific ramicauls, petals with a mere thickening at the apex, and a truncate lip with a short apiculum.

Two tall, caespitose species with similar, setaceous tips of the petals and lip (*Stelis guatemalensis* Schltr. and *S. pardipes* Rchb.f.) are found in both the Andes and Central America.

312. **Stelis biserrula** Lindl., Folia Orchid. *Stelis* 16(120), 1858.

Ety.: From the Latin *biserrulus*, "biserrulate," referring to the raceme that resembles a tiny, two-edged saw.

Plant small to medium in size, epiphytic, scandent; roots slender. Ramicauls ascending, slender, prolific, up to 15 cm long below to 4 cm long above, enclosed by a tubular sheath from below the middle and another sheath at the base. **Leaf** erect, coriaceous, narrowly elliptical, acute, petiolate, 4-6 cm long including the petiole ca. 0.5 cm long, 0.6-1 cm wide, cuneate below into the petiole. **Inflorescence** an erect, subdense, distichous, many-flowered raceme with several flowers open simultaneously, 5-10 cm long including the peduncle ca. 1 cm long, from an annulus below the apex of the ramicaul; floral bracts infundibular, 2-3 mm long; pedicels 1.5 mm long; ovary 1 mm long; flowers nutant, bilabiate; **sepals** purple to white, glabrous, the dorsal sepal erect, ovate, subacute, 3-4 mm long, 2 mm wide, 3-veined, connate basally to the synsepal, the lateral sepals connate into a broadly ovate, deeply concave synsepal, 3 mm long, 2 mm wide unexpanded, 4-veined; **petals** light green to purple, transversely oblong, long-apiculate, 0.3 mm long without the apiculum, 1 mm long with the apiculum, 1 mm wide, the base broadly truncate; **lip** green to purple, thick, subquadrate, long-apiculate, 0.4 mm long without the apiculum, 1.2 mm long with the apiculum, 1 mm wide, the apex abruptly contracted into the narrowly triangular apex, concave beneath the bar, the dorsum broad with a low callus, the base truncate, hinged to the base of the column; **column** stout, 0.5 mm long, 0.5 mm wide, the foot obsolescent, the anther and the stigma apical, the stigma bilobed.

ECUADOR: **Pichincha**: forest of Nanegal, 1854, *W. Jameson s.n.* (Holotype: K); without locality, *W. Jameson s.n.* (Holotype of *S. biserrula*: K); near Los Bancos, alt. 1650 m, 25 Feb. 2001, *S. Dalström & L. Jost s.n.* (MO).
Imbabura: Selva Allegre, alt. 1400 m May 1989, *A. Hirtz & X. Hirtz 4245* (K, MO).
El Oro: new road west of Piñas, alt. 1000 m, 25 Sept. 1980, *C. Luer, J. Luer & A. Hirtz 5551* (SEL); old road west of Pacha, alt. 1850 m, 23 May 1988, *C. Luer et al. 13617* (MO).
VENEZUELA: **Trujillo**: Boconó-Guaramacal road, June 1962, *G.C.K. Dunsterville 720.*
Mérida: Rangel, La Cuenca del Río Los Granates, alt. 3000-3140 m, 17 June 1988, *L.J. Dorr & L.C. Barnett 5585* (AMES, NY).
COLOMBIA: certainly present, but no material has been seen.

This species is possibly only a variation of the common and widely distributed *Stelis bicornis* Lindl. with a smaller habit and flowers. Vegetatively, it is almost delicate with many leaves one centimeter or less wide; and shorter, more congested racemes with sepals three to four millimeters long, instead of six to eight. Except for their smaller size, the petals and lip are similar.

Lindley described *Stelis biserrula* from a collection by Jameson from a forest near Nanegal near Quito. The flowers on his specimen are only buds, which explains his very meager description of the floral parts. The species is characterized by a prolific, long-scandent, vine-like habit with acute leaves. The small flowers are crowded and alternate with proportionately large floral bracts that give the raceme the appearance of a double-edged saw, hence Lindley's name.

99. **Stelis brevilabris** Lindl., Ann. Mag. Nat. Hist. 15: 107, 1845.

Ety.: From the Latin *brevilabris*, "with short lip," referring to the labellum.

Syn.: *Stelis inversa* Schltr., Repert. Spec. Nov. Regni Veg. Beih. 9: 64, 1921.
Ety.: From the Latin *inversus*, "inverted," in allusion to the flowers.

Syn.: *Stelis serpens* Luer & Hirtz, Monogr. Syst. Bot. Missouri Bot. Gard. 88: 82, 2002.
Ety.: From the Latin *serpens*, "crawling," referring to the elongated rhizome.

COLOMBIA: **Cauca**: Páramo de Guanacas, alt. 10,000 ft., *T. Hartweg 1411* (Holotype of *S. brevilabris*: K; Isotypes: LD, LE, W).
ECUADOR: **Tungurahua**: between Leito and Triunfo, alt. 2800-3000 m, 25 Aug. 2001, *A. Hirtz et al. 7772* (MO).
Napo: new road east of Salcedo, Río Anatenario, alt. 2800 m, 27 May 1979, *B. Løjtnant, A. & U. Molau 13815* (AAU, GB).
Morona-Santiago: road east of Sigsig, alt. 3100 m, 15 May 1988, *C. Luer, A. Hirtz et al. 13339* (K, MO).
Loja: army road to TV tower east of Yangana, alt. 2750 m, 22 Nov. 1985, *C. Luer, J. Luer, A. Hirtz & W. Flores 10794* (holotype of *S. serpens*: MO); Nudo de Cajanuma, between Loja and Yangana, alt. 2800 m, 14 Mar. 1989, *A. Freire Fierro 1327* (QCA); above Nudo de Capajuma, trail to Mirador, alt. 2900 m, 10 Apr. 1989, *J.E. Madsen 85955* (AAU, LOJA, QCA).

Zamora-Chinchipe: Cajanuma Range, south of Loja, alt. 2750 m, 21 Mar. 1985, *C. Luer, J. Luer, A. Hirtz & W. Flores 10736, 10757* (MO).
PERU: **Junín**: Tarma, mountains west of Huancapistana, alt. 2600-3000 m, Jan. 1903, *A. Weberbauer 2085* (holotype of *S. inversa* destroyed at B; lectotype here designated: CUZ, lectotype: MOL).

This species, widely distributed from Colombia to central Peru, was first collected a century and a half ago by Theodor Hartweg in the Páramo de Guanacas of southern Colombia, and described by Lindley. A recent collection from southeastern Ecuador was described and illustrated in *Icones Pleuroth.* 24, Part One, Fig. 99., as *Stelis serpens* Luer & Hirtz.

Stelis brevilabris is characterized by a long-repent habit; elliptical leaves about as long as the ramicauls; and a congested, secund raceme slightly longer than the leaf. The flowers are very small with partially connate, connivent lateral sepals; transverse petals with the apex irregularly thickened externally; and a three-lobed lip with a pair of obtuse lobes overhanging the base of the concave, ovate, middle lobe. The lateral lobes appear to be modifications of a transverse bar.

313. **Stelis dactyloptera** Rchb.f., Otia Bot. Hamburg. 1: 19, 1878.

Ety.: From the Greek *dactylopterus*, "with finger-like wings," referring to the fimbriate petals.

Plant small, epiphytic, caespitose; roots slender. Ramicauls erect, slender, 6-8 mm long, enclosed by two tubular sheaths. **Leaf** erect, coriaceous, narrowly elliptical, acute to subacute, petiolate, 18-30 mm long including a petiole 7-11 mm long, 7-8 mm wide, narrowly cuneate below into the petiole. **Inflorescence** a remotely few- to many-flowered raceme, more or less arching to pendent with the weight of the flowers, up to 25 cm long including the slender, weak peduncle 5-7 cm long, 2-3 flowers open simultaneously, from below the apex of the ramicaul; floral bracts infundibular, obtuse, 2 mm long, 2 mm wide; pedicels 1.5 mm long; ovary 2 mm long; flowers purple, bilabiate, **sepals** glabrous, the dorsal sepal erect, broadly ovate, obtuse, connate 3 mm basally to the synsepal, 10 mm long, 8 mm wide, 5- to 7-veined, the lateral sepals connate into a deeply concave, ovoid synsepal, 8 mm long, 10 mm wide expanded, 10-veined; **petals** transversely ovate, the apex rounded with the inner margin of the apex developed into a conspicuous, cockscomb-like lamella, the outer margin of the apex presents as a curved carina on the back side, 3 mm long including the fringe, 2.5 mm wide, 3-veined, shallowly concave below the thickened margin; **lip** subdiscoid, 0.6 mm long, 1.3 mm wide, 1 mm deep, shallowly concave anteriorly with the apex rounded, the margin thickened, microscopically aciculate-reticulate, the bar with a small marginal pair of calli flanking a small glenion, the dorsum with a small, rounded, pubescent callus, the base truncate, hinged to the base of the column; **column** clavate with the gynostemium slender, 1 mm long, 1 mm wide, the foot obsolescent, the anther and the stigma apical and bilobed.

ECUADOR: **Pastaza**, between Río Verde and Río Pastaza, alt. 6,000 ft., June 1877, *F.C. Lehmann s.n.* (Holotype of *S. dactyloptera*: W).
Tungurahua: between Río Verde and Río Negro, alt. 1500 m, 12 Apr. 1985, *C. Luer, J. Luer, A. Hirtz & W. Flores 11175* (MO); near Río Verde, alt. 1700 m, 29 May 1998, *L. Jost 1009* (MO), C. Luer 19492.
Morona-Santiago: Valle del Paute, alt. 2200 m, cultivated in Paute by A. Andreetta, 18 May 1988, *C. Luer 13389* (MO).
Zamora-Chinchipe: Cenepa, between Loja and Zamora, alt. 1600 m, 3 May 1958, *C.H. Dodson 349* (SEL); between Loja and Zamora, alt. 2200 m, 2 Mar. 1982, *C. Luer & A. Andreetta 7079* (SEL); east of pass east of Loja, alt. 2150 m, 26 Mar. 1985, *C. Luer, J. Luer, A. Hirtz & W. Flores 10958* (MO).
Azuay: eastern slope of Azuay, cultivated by B. Malo in Tarqui, 26 Feb. 1982, *C. Luer 7026* (SEL).

Apparently endemic on the eastern declivity of central Ecuador, this species is similar vegetatively to numerous other pleurothallids: a small, caespitose plant with narrowly elliptical, petiolate leaves. The weak, remotely flowered, arching to pendent inflorescence bears a few to many, proportionately large, bilabiate, purple flowers in slow succession. The inner margin of the apex of the petal is developed into a tall, cockscomb-like lamella that covers the outer margin. The petals were unique in the genus until the recent discovery of *Stelis florianii* Luer, a second species with long-fimbriate margins of the petals. The lip is round with an erect, bifid callus on the margin of the bar.

253., **253a. Stelis depauperata** Lindl., Folia Orchid. *Stelis* 16(124), 1858.

Ety.: From the Latin *depauperatus*, "depauperate," Lindley's opinion of the plant.

Syn.: *Stelis suaveolens* F.Lehm. & Kraenzl., Bot. Jahrb. Syst. 26: 448, 1899.
Ety.: From the Latin *suaveolens*, "sweet-smelling," referring to the fragrance of the flowers.

Syn.: *Stelis gracilispica* C.Schweinf., Bot. Mus. Leafl. Harvard Univ. 15: 17, 1951.
Ety.: From the Latin *gracilispicus*, "with slender spike," referring to the inflorescence.

Syn.: *Stelis graminosa* Luer & Hirtz, Monogr. Syst. Bot. Missouri Bot. Gard. 112: 31, 2007.fig.253.
Ety.: From the Latin *graminosus*, "grassy," referring to the habit.

Plant small to medium in size, epiphytic, densely caespitose; roots slender. Ramicauls erect, slender, 3-10 cm long, enclosed by 2-3 tubular sheaths. **Leaf** erect, coriaceous, narrowly elliptical, acute to subacute, 4-9 cm long including an indistinct petiole 1-1.5 cm long, 0.7-1.0 cm wide, narrowly cuneate below into the petiole. **Inflorescence** 1-2 erect, congested, secund, nearly simultaneously many-flowered racemes, 10-20 cm long including the peduncle 2-3 cm long, with a spathe 7-12 mm long, at an annulus below the apex of the ramicaul; floral bracts tubular, acute, 2 mm long; pedicels 1-1.5 mm long; ovary 1-1.5 mm long; **sepals** light green to light yellow-green, glabrous to minutely pubescent, the dorsal sepal free except for 0.5 mm at the base, erect, ovate, narrowly obtuse, 3-3.5 mm long, 1.3-2.2 mm wide, 3-veined, the lateral sepals connate to the apex into a concave, ovoid, synsepal, with the sides somewhat recurved, rounded at the apex, 2.6-2.8 mm long, 2.5 mm wide, 2.3-4 mm wide expanded, 6-veined; **petals** light green, transversely obovate-ovate, 0.6-0.75 mm long, 0.75-0.8 mm wide, 3-veined, concave below the broadly rounded, thickened, margin; **lip** light green, thick, subquadrate, 0.5 mm long, 0.6 mm wide, 0.3 mm deep, shallowly concave anteriorly with the apex obtuse or rounded with a thickened margin, the bar minutely cleft on the margin with a narrow glenion, the dorsum with a central, pubescent, rounded callus, the base truncate, hinged to the base of the column; **column** stout, 0.75 mm long, 0.6 mm wide, the foot obsolescent, the anther and the bilobed stigma apical.

ECUADOR: without collection data, *W. Jameson s.n.* (Holotype of *S. depauperata*: K).
Carchi: pass between Tulcán and Maldonado, alt. 2400 m, 16 Mar. 1991, *C. Luer, J. Luer, J. del Hierro, A. & X. Hirtz 15085* (MO); below Maldonado toward Chical, alt. 1500 m, 15 Jan. 1992, *C. Luer, J. Luer, A. & P. Jesup 16027* (Holotype of *S. graminosa*: MO).
Imbabura: Selva Alegre, alt. 1400 m, May 1989, *A. Hirtz & X. Hirtz 4221* (MO).
Morona-Santiago: near Chiguinda and Granadillas, alt. 1600-2000 m, *F.C. Lehmann 6565* (holotype of *S. suaveolens* destroyed at B, lectotype here designated: K, lectotype: AMES).
Napo: new road to Coca north of Archidona, alt. 1200 m, 13 Apr. 1985, *C. Luer, J. Luer, A. Hirtz & W. Flores 11223, 11230* (MO).
Loja: above Yangana north of the pass, alt. 2400 m, 23 Mar. 1985, *C. Luer, J. Luer, A. Hirtz & W. Flores 10870, 10878* (MO).
Zamora-Chinchipe: Cordillera del Condor, east of Paquisha, alt. 1050 m, 19 Feb. 1986, *C. Luer. J. Luer, A. Hirtz, W. Flores & A. Embree 11924* (MO); Cordillera del Condor, east of Los Encuentros, alt. 1550 m, 18 May 1988, *C. Luer, A. Hirtz et al. 13445* (MO).
PERU: **Huánuco**: Carpish between Huánuco and Tingo Maria, alt. 2500-2900 m, 2 Mar. 1947, *Ramón Ferreyra 1748* (holotype of *S. graciliscapa*: AMES; isotype: CUZ).

Stelis depauperata, found occasionally from northernmost Ecuador to central Peru, was described by Lindley from a collection by Jameson, but without data. Most likely it was found in the area around Quito where Jameson was living. Later collections were described, one being illustrated and described as *Stelis graminosa* Luer & Hirtz in *Icones Pleuroth.* 29, Part Three, Fig. 253.

This slender species is similar to the variable *Stelis nutans* Lindl. It is distinguished from the latter by a usually smaller, more slender habit with very narrow leaves and one or two slender, small-flowered racemes that exceed the leaf. The sepals are usually less than three and a half millimeters long. The lateral sepals are connate into a concave synsepal; the petals and lip are thin, transverse and three-veined; and the lip is subquadrate with a small glenion and a single callus on the dorsum.

Only a bud was available for examination on Lindley's type-specimen. In his description, he states that that the pubescence is remarkable, but it is remarkable in the bud by a total absence. It was not illustrated by Elmer Smith (Garay, 1980).

314. **Stelis dialissa** Rchb.f., Bonplandia 3: 71, 1855.

Ety.: Named for the unispecific genus *Dialissa*, from *Dialis*, pertaining to Dis (Dieus, Jupiter).

Bas.: *Dialissa pulchella* Lindl., Ann. Mag. Nat. Hist. 15: 107, 1845, not *Stelis pulchella* Kunth., Nov. Gen. Sp. 1: 364, 1816.

Ety.: From the Latin *pulchellus*, "beautiful," referring to the plant.

Syn.: *Pleurothallis pristis* Lehm. & Kraenzl., Bot. Jahrb. Syst. 26: 443, 1899.

Ety.: From the Greek *pristis*, "a sawfish," referring to the appearance of the inflorescence.

Plant medium to large in size, epiphytic, scandent, long-repent, the rhizome 2.5-7 cm long between ramicauls, with 2 tubular sheaths; roots slender. Ramicauls ascending, slender, 4-7 cm long, enclosed by 2 loose, tubular sheaths. **Leaf** erect, coriaceous, narrowly elliptical, petiolate, acute, 5-9 cm long including the petiole 0.5-1.5 cm long, 1-2.5 cm wide, narrowly cuneate below into the petiole. **Inflorescence** an erect, subdense, distichous, many-flowered raceme with several to many flowers open simultaneously, 15-35 cm long including the peduncle 8-15 cm long, borne laterally below the apex of the ramicaul; floral bracts acute, acuminate, 5-7 mm long; pedicels 2-2.5 mm long; ovary 3-4 mm long; **sepals** glabrous, purple externally, dull gray-purple within, the dorsal sepal ovate, obtuse, convex, 4.5-5 mm long, 3 mm wide, 3-veined, connate 1.5-2 mm to the synsepal, the lateral sepals connate into a broadly ovate, concave, bifid synsepal, with obtuse, recurved apices, 3.5-4 mm long, 3.5-4 mm wide unexpanded, connate 3 mm, 6-veined; **petals** yellow, edged in purple, broadly obovate, obtuse, 2 mm long, 1.75-2 mm wide, 3-veined, the apex slightly thickened, shallowly concave; **lip** orange, ovate, obtuse, 1.6 mm long, 1.5 mm wide, 1 mm deep, concave anteriorly before bar, the bar prominent to either side of an obtuse, central cleft, the dorsum with a low, rounded, cellular-pubescent callus toward the base, the base truncate, hinged to the tip of a short, thick column-foot; **column** stout, 1 mm long, 1.5 mm wide across the stigmatic lobes, the anther and the bilobed stigma apical.

COLOMBIA: **Cauca**: Páramo de Guanacas above Popayán, alt. 10,500 ft., *T. Hartweg 1413* (Holotype of *Dialissa pulchella*: W; Isotypes: BM, BR, G, K, LD, LE); same area, *H. Karsten s.n.* (W); same area, *F.C. Lehmann s.n.* (W); same area, alt. 2900-3800 m, Jan. 1886, *F.C. Lehmann 6032* (holotype of *P. pristis* Lehm. & Kraenzl. destroyed at B; lectotype here designated: AMES); above Pitayó, alt. 3000 m, 29 Oct. 1882, *F.C. Lehmann* (G); Páramo de Las Papas, laguna de Cusiyaco, alt. 3375 m, 13 Oct. 1958, *H.G. Barclay & P. Juajibioy 6068* (AMES, COL).
Tolima: Mariquita, alt. 10,000-11,000 ft., Jan. 1843, *J. Linden 1275* (G, W).
Nariño: between Ipiales and La Victoria, alt. 3300 m, 4 Nov. 1979, *C. Luer, J. Luer & A. Hirtz 4638* (SEL).
Putumayo: Páramo de San Antonio del Bordoncillo, alt. 3250 m, 4 Jan. 1941, *J. Cuatrecasas* (AMES, COL); Valle de Sibundoy, alt. 2800 m, 30 June 1953, *R.E. Schultes & I. Cabrera 20084* (AMES, COL).
ECUADOR: **Carchi**: between Tulcán and El Carmelo, alt. 3200 m, 4 Apr. 1985, *C. Luer, J. Luer, A. Hirtz & W. Flores 11083* (MO); El Mirador, alt. 3300 m, Aug. 1990, *A. Hirtz, X. Hirtz, J. del Hierro & F. Sarmiento 4948* (MO).
Pichincha: Andes of Quito, alt. 12,000 ft., *W. Jameson 24* (K).
Sucumbíos: Cerro Mirador, southeast of El Playón de San Francisco, alt. 3300 m, 28 Dec. 1980, *L. Holm-Nielsen, J. Jaramillo & F. Coello 29843* (AAU, QCA).
Morona-Santiago: southeast of Sigsig toward Chiguinda, alt. 2500 m, 5 Feb. 1988, *U. Molau, B. Eriksen & M. Fredrikson 2968* (GB).

Lindley described a Colombian collection by Hartweg in 1845 in a unispecific genus as *Dialissa pulchella*. Ten years later, Reichenbach (1855) moved it to *Stelis* as *Stelis dialissa*, the specific name *pulchella* having been applied to an unrelated species, *S. pulchella* by Kunth.

This species is one of the few pleurothallids that can be recognized dead or alive. It is a large species with a scandent, prolific habit and acute, petiolate leaves. The distinctive, long, many-flowered racemes with two opposing rows of long, pointed, floral bracts reminded Kränzlin of a sawfish, hence *Pleurothallis pristis* Lehm. & Kraenzl.

The unexpanded sepals are obtuse and connate below the middle. The petals are simple and broadly obovate. The type-B lip is concave behind a subacute apex and before a bilobed bar.

315., 315a. **Stelis elongata** Kunth, Nov. Gen. Sp. 1: 363, 1816.

Ety.: From the Latin *elongatus*, "elongated," referring to the habit,

Syn.: *Stelis lobata* Rchb.f., Bonplandia 3: 241, 1855.
Ety.: From the Latin *lobatus*, "lobed," referring to the labellum.

Syn.: *Stelis melicoides* Schltr., Repert. Spec. Nov. Regni Veg. Beih. 9: 66, 1921.
Ety.: From the Greek *melicoides*, "bee-like," referring to the fancied appearance of the flowers.

Plant medium to large in size, epiphytic, scandent, long-repent, the rhizome stout, suberect, 0.5-2 cm long between ramicauls; roots slender. Ramicauls ascending, slender, 1-8 cm long, enclosed by a tubular sheath from near the middle and 2-3 other sheaths at the base. **Leaf** erect, coriaceous, narrowly elliptical, petiolate, with the apex subacute to acute, 2.5-9 cm long including the petiole 1-1.5 cm long, 0.7-1 cm wide, narrowly cuneate below into the petiole. **Inflorescence** an erect, congested, secund, simultaneously many-flowered raceme, 4-20 cm long including the peduncle 1-5 cm long, from an annulus below the apex of the ramicaul; floral bracts oblique, acute, 2-3.5 mm long; pedicels 1-2 mm long; ovary curved, 1-1.5 mm long; flowers nutant; **sepals** light rose to purple, glabrous externally, cellular-papular within, the dorsal sepal erect, oblong, obtuse, lightly convex, 3-3.5 mm long, 1.75 mm wide, 3-veined, connate basally to the synsepal, the lateral sepals ovate, acute, 2.5-2.75 mm long, 1.5 mm wide, 3-veined, connate basally, but held forward; **petals** yellow-green, transversely ovate, 0.6 mm long, 0.8 mm wide, shallowly concave below the broadly obtuse, thickened margin; **lip** yellow-green thick, trilobed, 1 mm long, 0.6 mm wide across the basal lobes, the apical lobe narrowly triangular, acute, the basal lobes expanded, ovate, antrorse, subacute, the base hinged to the tip of the column; **column** stout, 0.5 mm long, 0.75 mm wide, the foot obsolescent, the anther and the stigma apical, the stigma bilobed.

Selected representative collections:
COLOMBIA: **Cauca**: near Popayán, Río Blanco Almaguer, alt. 480 hex., Nov. 1801, *A. Humboldt & A. Bonpland s.n.* (Holotype of *S. elongata*: P; photo at AMES); Volcán de Puracé, Páramo de San Rafael, alt. ca. 10,000 ft., 23 July 1960, *L.A. Garay 13* (AMES).
Nariño: woods near Pasto, Sept. 1845, *W. Jameson 481* (holotype of *S. lobata* Rchb.f.: W; isotypes; BM, BR, G, LE); Lagua La Cocha, alt. not recorded, 25 July, 1960, *L.A. Garay 38* (AMES).
ECUADOR: **Carchi**: between Tulcán and Maldonado, alt. 3200 m, 17 May 1973, *L. Holm-Nielsen, S. Jeppesen, B. Løjtnant & B. Ølgaard 5620* (AAU, AMES).**Sucumbíos**: Cartagena, between El Carmelo and La Bonita, alt. 2800 m, 8 Apr. 1979, *B. Løjtnant, U. Molau & M. Madison 12024, 12026* (AAU, GB); south of Santa Barbara, alt. 2700 m, 6 Apr. 1985, *C. Luer, J. Luer, A. & X. Hirtz 11099* (MO).
Imbabura: between Otavalo and Apuela, alt. 2500 m, 8 Feb. 1979, *C. Luer, J. Luer & A. Hirtz 3911* (SEL); between Cotacachi and Apuela, alt. 2800 m, 22 Jan. 1988, *U. Molau, B. Eriksen & M. Fredrickson 2651* (GB); Mariano Acosta, alt. 3300 m, 1 May 2001, *A. Hirtz & X. Hirtz 7740* (MO).
Pichincha: Valley of Lloa, (R.104), *W. Jameson s.n.* (K); Valley of Lloa, alt. 8,000 ft., 21 Jan. 1856, *W. Jameson 472* (AMES, G); west side of Pichincha, alt. 6,000 ft, 1857, *W. Jameson s.n.* (K); forest of Auca, road to Nanegal, alt. 6,000 ft., *W. Jameson R.105* (K); near Nono, alt. 2700 m, 16 Apr. 1956, *E. Asplund 20291* (AMES, S); rocky cliffs between Quito and Chiriboga, alt. 2400-2800 m, 14 Mar. 1963, *C.H. Dodson & L.B. Thien 2392* (MO, SEL); new road between Quito and Santo Domingo, alt. 2000 m, 2 Feb. 1978, *C. Luer, J. Luer & A. Hirtz 2428, 2431* (SEL).
Cotopaxi: between Latacunga and Quevedo, above Pilalo, alt. 2700 m, 28 May 1979, *B. Løjtnant, A. & U. Molau 13913* (AAU, GB).
Napo: slopes of Guagra Urcu, above Río Bretania, alt. 2000 m, 22 Sept. 1980, *L. Holm-Nielsen, J. Jaramillo, F. Coello & E. Azanza 26832* (AAU, QCA); above Papallacta, alt. 2770 m, 15 May 1981, *C. Luer, J. Luer & A. Hirtz 6235* (SEL).
Bolívar: Hda. Talahua, alt. 2700 m, 7 May 1939, *C.W. Penland & R.H. Summers 670* (AMES, COCO); at the pass north of Chillanes, alt. 2650 m, 25 Mar. 1984, *C. Luer, A. Hirtz, S. Dalström & T. Höijer 9715* (MO).
Azuay: Río Collay, south of El Pan, alt. 2650-3290 m, 6 July 1943, *J.A. Steyermark 53367* (AMES).
Loja: army road to TV tower east of Yangana, alt. 2850 m, 4 Mar. 1982, *C. Luer et al. 7155* (SEL); San Pedro de Vilcabamba, alt. 2400 m, 23 Apr. 1986, *D. D'Alessandro 630* (MO); above Valladolid, alt. 2600 m, 23 Mar. 1985, *C. Luer, J. Luer & A. Hirtz 10914* (MO).
Zamora-Chinchipe: Quebrada Honda south of Yangana, alt. 2100 m, 27 Mar. 1986, *D. D'Alessandro & H. Mendoza 555, 567* (MO).
PERU: **Cajamarca**: Chugur, northwest of Hualgayoc, alt. 1700-2900 m, Mar. 1904, *A. Weberbauer 4076* (holotype of *S. melicoides*: destroyed at B; lectotype here designated: *A. Weberbauer 7571*, AMES).
Ayacucho: Huanta, Choimacota Valley, alt, 2900-3000 m, 28 Feb. 1926, *A. Weberbauer 7571* (AMES).
BOLIVIA: **Cochabamba**: road from Cochabamba to Villa Tunari, alt. 2840 m, 13 Jan. 1981, *C. Luer, J. Luer & R. Vásquez 5611* (SEL).

This slender, long-scandent species is variable, relatively frequent and widely distributed in the Andes from Colombia into central Bolivia. It is characterized by a stout, suberect or creeping rhizome and ascending ramicauls about as long as the long, slender leaves that are surpassed by a slender, many-flowered raceme. The erect dorsal sepal of the nodding flowers is longer than the lateral sepals that are held forward. The petals are flabellate and thickened; the lip is one millimeter long and three lobed; the lateral lobes are basal while the anterior lobe is narrowly triangular.

316. Stelis flacca Rchb.f., Bonplandia 3: 240, 1855.

Ety.: From the Latin *flaccus*, "limp or withered," for some character Reichenbach saw in the plant.

Syn.: *Stelis alismifolia* Lindl., Folia Orchid. *Stelis* 16(128), 1858.

Ety.: Named for the vegetative similarity to *Alisma plantago* L., a member of the *Alismaceae*,

Plant medium in size, epiphytic, densely caespitose-ascending; roots slender. Ramicauls erect, very slender, 5-8 cm long, enclosed by a narrow, tubular sheath near the middle and 2-3 other sheaths at the base. **Leaf** erect, coriaceous, narrowly elliptical, acute, long-petiolate, 6-8.5 cm long including the petiole 1.5-2.5 cm long, 0.8-1.3 cm wide, cuneate below into the petiole. **Inflorescence** 1-4 erect, laxly to subdensely several-flowered racemes with most flowers open simultaneously, 5-16 cm long including the peduncle 2-4 cm long, subtended by a spathe 5-6 mm long, from an annulus below the apex of the ramicaul; floral bracts infundibular, oblique, acute, 2.5-3 mm long; pedicels 1.5 mm long; ovary 1.5 mm long; flowers bilabiate; **sepals** minutely pubescent within, the dorsal sepal dark purple, erect, ovate, obtuse, 5 mm long, 4 mm wide, 5-veined, connate to the synsepal for 1-1.5 mm, the lateral sepals yellow white, connate into a broadly ovate, deeply concave synsepal, 4 mm long, 5.5 mm wide unexpanded, 8-veined; **petals** purple, transversely ovate, 1 mm long, 1.6 mm wide, concave below the broadly rounded apex with the margin broad and thickened, the base concave below a transverse callus; **lip** purple, thick, subquadrate, 0.8 mm long, 0.8 mm wide, 0.8 mm deep, the apex thick, broadly rounded, shallowly concave anteriorly, the bar tall and erect, rounded with a shallow glenion, the posterior surface (the "dorsum") with a low, central, conical callus, the base truncate, hinged to the base of the column; **column** elongate, 1 mm long, 0.8 mm wide, the foot obsolescent, the anther and the stigma apical, the stigma bilobed.

ECUADOR: **Pichincha**: western side of Pichincha, June 1848, *W. Jameson 735* (Holotype of *S. flacca*: K; Isotypes: BM, BR, G, LE, W); western side of Pichincha, *W. Jameson R.89* (holotype of *S. alismaefolia*: K, isotype: W); without locality, 1855, *J.P. Couthouy s.n.* (AMES); between Tandayapa and Mindo, alt. 2100 m, 13 Mar. 1982, *C. Luer, A. Hirtz & S. Dalström 7313* (SEL); between Calacalí and Mindo, alt. 2000 m, 9 Mar. 2001, *C. Luer & A. Hirtz 19872* (MO).
Imbabura: Selva Alegre, alt. 1730 m, 1 May 1981, *C. Luer, J. Luer & A. Hirtz 6072* (SEL).

This species is apparently endemic and uncommon on the western slopes of northwestern Ecuador. It is characterized by a slender, densely caespitose habit that forms an ascending fascicle of ramicauls. The one to four racemes bear the flowers beyond narrowly elliptical, acute leaves. The dorsal sepal is dark purple while the deeply concave, transverse synsepal is yellow. The petals are proportionately large. The bar of the lip stands erect above the broadly thickened, rounded apex. On the front surface is a shallow glenion. On the back surface (dorsum) there is a low, conical callus.

127. **Stelis frontinoënsis** O.Duque, Orquideología 22(3): 347, 1977.

Ety.: Named for the community of Frontino in Antioquia, Colombia, mear where the species was collected.

Syn.: *Stelis venusta* Luer & Hirtz, Monogr. Syst. Bot. Missouri Bot. Gard. 95: 132, 2004.

Ety.: From the Latin *venustus*, "beautiful, elegant," referring to the display of fine flowers.

COLOMBIA: **Antioquia**: Frontino, collected by Francisco Villegas, alt. 2200 m, flowered in cultivation 13 Dec. 1995, *O. Duque 1891* (Holotype of *S. frontinoënis*: JAUM).
ECUADOR: **Morona-Santiago**: along new road between Macas and Guamote, alt. 2300 m, 2 Mar. 2001, *C. Luer, J. Luer & A. Hirtz 19615* (holotype of *S. venusta* Luer & Hirtz: MO).
Loja: between Yangana and Valladolid, *J.E. Madsen 85670* (AAU, SEL).
Zamora-Chinchipe: Estación Cientifica San Francisco, between Loja and Zamora, alt. 2180 m, 8 Mar. 2005, *F. Werner 1493* (LOJA, MO).

This elegant species was first described as *Stelis frontinoënsis* by Oscar Duque from a collection by Francisco Villegas from the Western Cordillera of Colombia, and was later described in *Icones Pleuroth.* 26, Part Two, Fig. 127, as *S. venusta* Luer & Hirtz, from southeasternmost Ecuador.

The flowers are relatively large with a broadly ovate synsepal that is shallowly concave centrally with margins of both sides recurved. The petals are large with the flat margins sharply defined. The dorsum of the lip is acutely deflexed so that the bar is thin between the dorsum and anterior surface, creating a narrowly triangular profile.

317. Stelis gastrodes Luer & Hirtz, sp. nov.

Ety.: From the Greek *gastrodes*, "potbellied," referring to the synsepal.

Species haec *S. coeliacae* Luer & Hirtz. affinis, sed floribus minoribus, sepalo dorsali trinervato, et labello tricalloso differt.

Plant medium in size, epiphytic, densely caespitose; roots slender. Ramicauls erect, slender, 6-7 cm long, enclosed by a tubular sheath on the middle third, and 2-3 below at the base. **Leaf** erect, coriaceous, narrowly elliptical, subacute to obtuse, petiolate, 6-7 cm long including a petiole ca. 1 cm long, the blade 1-1.5 cm wide dry, cuneate below into the petiole. **Inflorescence** 1-3 erect, lax, subdistichous, simultaneously several-flowered racemes, 15-18 cm long including the peduncle 5-6 cm long, with a spathe ca. 1 cm long; floral bracts infundibular, oblique, acute, 3 mm long; pedicels 2.5 mm long; ovary 2 mm long; **sepals** olive-rose, glabrous, the dorsal sepal slightly reflexed from the base, broadly ovate with recurved sides, obtuse, 4 mm long, 3.75 mm wide, 3-veined, connate basally to the synsepal for 1 mm, the lateral sepals connate into a broadly ovoid, concave synsepal, 3 mm long, 4 mm wide unexpanded, 6-veined, with a 3 mm deep mentum; **petals** yellow, transversely ovate, shallowly concave, with the apex broadly rounded, thickened, 1.2 mm long, 1.8 mm wide, 3-veined; **lip** yellow, thickly subovoid, 1 mm long, 1 mm wide, 0.8 mm deep, concave anteriorly with the rounded apex thickened, the bar with protruding edges on either side of a shallow, central sulcus, the dorsum with three, confluent calli, the base truncate, hinged to the base of the column; **column** stout, 1.5 mm long and wide, the anther and the bilobed stigma apical, the foot obsolescent.

ECUADOR: **Morona-Santiago**: Guarumales, alt. 1500 m, collected by Ecuagenera and flowered in cultivation by Ecuagenera, 2 Feb. 2002, *A. Hirtz 8035* (Holotype of *S. gastrodes*: MO), C. Luer illustr. 20833.

This species from an altitude of 1500 meters above sea level is known from only the one plant cultivated by Ecuagenera. *Stelis gastrodes* is similar to *Stelis coeliaca* Luer & Hirtz, which is found at altitudes over 2000 meters above sea level. In habit, the two species are similar, but the flowers of *S. gastrodes* are only half the size of those of *S cajanumae* with the dorsal sepal three-veined instead of with five or five branching veins. The synsepal is similarly abruptly concave below the central apparatus, but the cavity is proportionately deeper, which is prominent in the lateral view.

318. Stelis globiflora Rchb.f., Otia Bot. Hamburg. 1: 19, 1878.

Ety.: From the Latin *globiflorus*, "with spherical flowers," referring to the raceme.

Plant small, epiphytic, caespitose; roots slender. Ramicauls erect, slender, 8-10 mm long, enclosed by 2-3 thin, tubular sheaths. **Leaf** erect, coriaceous, elliptical-obovate, subacute to obtuse, 15-25 mm long including a petiole 8-10 mm long, 4-6 mm wide, cuneate below into the petiole. **Inflorescence** a flexible, subflexuous, lax, several-flowered raceme with most flowers open simultaneously, 4-6.5 cm long including the peduncle 3-4 cm long, from an annulus below the apex of the ramicaul; floral bracts infundibular, acute, 1.5 mm long; pedicels 1 mm long; ovary 1 mm long; flowers bilabiate, sensitive; **sepals** glabrous, the dorsal sepal purple, erect, broadly ovate, obtuse, 5 mm long, 4 mm wide, 3-veined, connate 1 mm to the synsepal, the lateral sepals light yellow, lightly suffused with purple, connate into a broadly ovoid, deeply concave synsepal, 3.5 mm long, 5.25 mm wide unexpanded, 6-veined; **petals** purple, broadly ovate-triangular, rounded at the apex, 1.75 mm long, 1.75 mm wide, 3-veined, slightly thickened across the middle and at the apex; **lip** purple, shallowly suborbicular, 0.4 mm long, 1 mm wide, 0.5 mm deep, very shallowly concave anteriorly with the apex broadly rounded, the dorsum narrow, deflexed, with a round callus, hinged to the base of the column; **column** stout, 0.5 mm long, 0.8 mm wide, the foot obsolescent, the anther and the bilobed stigma apical.

ECUADOR: without locality, alt. 5,000 ft., Mar. 1877, *F.C. Lehmann s.n.* (Holotype of *S. globiflora*: W).
Pastaza: north of Mera, alt. 1350 m, 12 Apr. 1985, *C. Luer, J. Luer, A. Hirtz & W. Flores 11194* (MO); Mera, alt. 1270 m, 13 Oct. 1984, *A. Hirtz & C. Dodson 2023* (MO).
Napo: near new road south of Baeza, alt. 1000-1500 m, 10-11 Aug. 1978, *C. Luer, J. Luer, A. Hirtz & A. Andreetta 3212, 3272* (SEL); new road to Coca north of Archidona, alt. 1200 m, 13 Apr. 1985, *C. Luer, J. Luer, A. Hirtz & W. Flores 11219* (MO); same area, alt. 1000 m, 17 Feb. 1990, *S. Dalström & L. Årnby 1358* (MO); above Loreto, alt. 900 m, 11 Oct. 1999, *A. Hirtz, X. Hirtz, Mary & H. Evans 6660* (MO).
Tungurahua: near Baños, alt. 2700 m, 10 July 1967, *C.H. Dodson, N.H. Williams & R. Adams 3758* (SEL); Topo, orange trees along the river, alt. 1400 m, 11 Aug. 1978, *C.H. Dodson, T. Dodson, A. Embree & R. Perry 7256* (SEL).
Morona-Santiago: Río Paute near Guarumales, alt. 2000 m, 20 Oct. 1999, *A. Hirtz 7003* (MO); Guarumales, Apr. 2001, *A. Hirtz, X. Hirtz, H. Zelenko & R. Zloch 7716* (MO).

This little species was first collected by Consul Lehmann in Ecuador without a stated locality. It is characterized by a loose, several-flowered raceme of flowers with a bowl-shaped synsepal below an erect, three-veined dorsal sepal. The proportionately large petals are protuberant and subtriangular with a thin, expanded apical margin. The lip is small, rounded and flat. In hydrated flowers, the lip splits easily into two laminae. The dorsal layer is not a callus as thought by Garay.

319. **Stelis glomerosa** Luer, Selbyana 5(2): 191, 1979.

Ety.: From the Latin *glomerosus*, "round like a ball," referring to the spherical flowers.

Plant medium to large, epiphytic, scandent, long-prolific, to 1 meter in length; roots slender, Ramicauls ascending, erect, slender, 3-6.5 cm long, enclosed below the middle by a tubular sheath, each ramicaul proliferating the next ramicaul. **Leaf** erect, coriaceous, elliptical, acute, 4-6.5 cm long including the petiole 1 cm long, 0.8-1.4 cm wide, cuneate below into the petiole. **Inflorescence** a pendent, flexible, flexuous, lax, distichous, many-flowered, successively flowered raceme with a few flowers open simultaneously, 15 or more cm long including the peduncle ca. 1 cm long, subtended by a spathe ca. 5 mm long, from an annulus below the apex of the ramicaul; floral bracts inflated, oblique, acute, 3-5 mm long; pedicels 1.5 mm long; ovary 2 mm long; flowers non-resupinate; **sepals** membranous, glabrous, white, veined and slightly suffused with purple, inflated, deeply connate into a spherical sepaline tube, the dorsal sepal elliptical, concave, 8 mm long, 4.5 mm wide unexpanded, 5-veined, connate 6 mm to the synsepal, with the apex sharply obtuse and recurved, the lateral sepals connate to near the tips into a deeply concave synsepal, 7.5 mm long, 7.5 mm wide, unexpanded, with the apex obtuse, minutely bifid; **petals** subquadrate, 2 mm long, 2 mm wide, 3-veined, with the apex truncate, abruptly apiculate; **lip** purple, thick, subpyramidal, 1.5 mm long, 1 mm wide, 1 mm deep, deeply concave above a transverse callus near the middle with the apex with a narrowly acute apiculum, the dorsum shallowly concave and minutely lobular, the base broadly truncate, hinged to the base of the column; **column** stout, 0.75 mm long, 1.25 mm wide, the anther and the stigma apical, the stigma with diverging, winglike lobes, the foot short, thick.

ECUADOR: **Cotopaxi**: between Angamarca and Corazón, alt. 2000 m, 17 Feb. 1979, *C. Luer, J. Luer & A. Hirtz 3993* (Holotype of *S. glomerosa*: SEL).

This rare species from west central Ecuador is characterized by a long chain of superposed ramicauls, each about as long as the elliptical leaf it bears. The inflorescence is a flaccid, flexuous raceme that bears in succession a few spherical, non-resupinate flowers. The deeply connate, inflated sepals part only slightly at the apex, like the mouth of a puffer fish. Hidden from view within are the apiculate petals and a concave, acuminate lip.

320. **Stelis glossula** Rchb.f., Gard. Chron. 1373, 1870.

Ety.: From the Greek *glossula*, "a little tongue," referring to the labellum.

Syn.: *Stelis inaequalis* Ames, Sched. Orchid. 4: 12, 1923.
Ety.: From the Latin *inaequalis*, "unequal," referring to the difference is size of the dorsal sepal and synsepal.

Syn.: *Apatostelis glossula* (Rchb.f.) Garay, Bot. Mus. Leafl. Harvard Univ. 27(7-9): 188, 1979.
Syn.: *Apatostelis inaequalis* (Ames) Garay, Bot. Mus. Leafl. Harvard Univ. 27(7-9): 189, 1979.

Plant small, epiphytic, densely caespitose; roots slender. Ramicauls erect, stout, 3-5 mm long, completely enclosed by a longer, loose, ribbed, tubular sheath. **Leaf** erect, thickly coriaceous, narrowly elliptical-obovate, obtuse, 20-35 mm long including an indistinct petiole, 5-8 mm wide, narrowly cuneate below to the base. **Inflorescence** a suberect to horizontal, congested, distichous, many-flowered raceme, with the flowers borne transversely in 2 opposite ranks, to 2 cm long and a slender peduncle 8-11 cm long, from an annulus below the apex of the ramicaul; floral bracts oblique, obtuse, 0.6-1 mm long; pedicels 0.5 mm long; ovary 0.5-1 mm long; **sepals** expanded, dark brown or dark orange, minutely pubescent, the dorsal sepal elliptical-oblong, obtuse, 2-3 mm long, 1-1.5 mm wide, 3-veined connate basally, the lateral sepals broadly ovate to suborbicular, obtuse, connate to near the middle or above into a transverse, bifid lamina, each 1-1.2 mm long, 1.2-1.6 mm wide; **petals** brown, transversely ovate, concave, thickened along the broadly obtuse apex, 0.5 mm long, 1 mm wide, 1-veined; **lip** brown, ovoid-subquadrate, 0.25-0.5 mm long, 0.25-0.5 mm wide, 0.25-0.5 mm deep, the anterior surface with a deeply concave glenion above the thickened margin with a minute apiculum, the dorsum channeled from the glenion, the base broadly truncate, hinged to the base of the column; **column** stout, 0.5 mm long, 0.5 mm wide, the foot obsolescent, the anther and the small, bilobed stigma apical.

COSTA RICA: without locality, imported ca. 1867, flowered in cultivation by Messrs Veitch 1870, *A.R. Endres s.n.* (Holotype of *S. glossula*: W); Buenos Aires de Terraba, flowered in cultivation in Cartago, May 1934, by *C.H. Lankester 1373* (AMES).
Puntarenas: Osa El Campo, Quebrada Banegas, alt. 350 m, 13 Jan. 1991, *G. Herrera 4813* (CR, MO).
NICARAGUA: **Zelaya**: area of Río Rama and Cerro Medina, *Proctor, Jones & Facay 27412* (F); Mina Nueva América, *Pipoly 5287* (MO); between Suina and Rosita, alt. 450 m, *A. H. Heller 4636* (SEL).
HONDURAS: **Atlántida**: Nova Tela, Jilamo Arriba, 21 Mar. 1923, *O. Ames II. 243* (holotype of *S. inaequalis*: AMES).
PANAMA: **Chiriquí**: without locality, collected by H. Butcher, Feb. 1984, *C. Luer 9505* (MO).
Panama: near San Juan in the foothills of the upper reaches of the Chagras River, sea level, *C.W. Powell 272* (holotype of *S. inaequalis*: AMES: isotype: MO).
ECUADOR: **Esmeraldas**: between San Lorenzo and Lita, alt. 60 m, 25 Jan. 1996, *A. Hirtz, X. Hirtz & J. del Hierro 6265* (MO); near San Lorenzo, alt. 100 m, cultivated at Ecuagenera, 7 Mar. 2001, *C. Luer 19833* (MO).

This small species is rare but widely distributed in Central America to coastal northern Ecuador. The plant is densely caespitose with thickly coriaceous leaves with abbreviated ramicauls completely enclosed by a loose sheath. The slender inflorescence far exceeds the leaves. In a congested raceme much shorter than the peduncle, the tiny flowers are borne transversely and over-lapping in two opposite ranks. The oblong dorsal sepal is twice as long as the transversely obovate synsepal. The flabellate, single-veined petals are not remarkable except that their width is thrice the length or width of the lip. The nearly microscopic lip is thickly subquadrate with a concave glenion on the anterior face above the thickened, minutely apiculate margin. The stigmatic lobes of the column are small and inconspicuous behind the anther cap.

321., 321a. Stelis guatemalensis Schltr., Bull. Herb. Boiss. 7: 541, 1899.

Ety.: Named for Guatemala, the country where the species was first identified.

Syn.: *Stelis patula* Schltr., Repert. Spec. Nov. Regni Veg. Beih. 10: 359, 1912.
Ety.: From the Latin *patulus*, "spreading," referring to the sepals.

Plant medium to large in size, epiphytic, caespitose; roots slender. Ramicauls slender, erect, 10-15 cm long, enclosed by a tubular sheath above the middle, and another 1-2 sheaths at the base. **Leaf** erect, coriaceous, narrowly elliptical, petiolate, acute to subacute, 9-11 cm long including the petiole 1.5 cm long, the blade 1.5-2 cm wide, cuneate below into the petiole. **Inflorescence** 1-3 erect, distichous, densely many-flowered racemes with most flowers open simultaneously, 15-24 cm long including the peduncle 3-6 cm long, subtended by a spathe ca. 1.5 cm long, from an annulus below the apex of the ramicaul; floral bracts thin, tubular, 3 mm long; pedicels 2 mm long; ovary 2 mm long; flowers bilabiate; **sepals** glabrous, the dorsal sepal brown, erect, thick, convex, broadly elliptical, obtuse, 5.5 mm long, 3.6 mm wide, incompletely 3-veined, connate to the synsepal for 1.5 mm, the lateral sepals light brown, connate into a broadly ovate, deeply concave synsepal, 3.4 mm long, 4 mm wide unexpanded, 6-veined; **petals** purple, transversely triangular, shallowly concave, obtuse, shortly acuminate, 1 mm long, 1.25 mm wide,

3-veined; **lip** purple, thick, subquadrate, 0.6 mm long, 1 mm long with tip, 1 mm wide, 0.6 mm deep, the apex triangular, concave, acute, with an apiculum 0.3 mm long, the bar with a glenion, the dorsum with a low, pubescent callus, the base truncate, hinged to the base of the column; **column** stout, 0.8 mm long, 1 mm wide, the foot obsolescent, the anther and the bilobed stigma apical.

Selected representative collections:
GUATEMALA: **Huehuetenango**: Yalambohoch, 22 Aug. 1896, *Seler 2316* (Holotype destroyed at B; Neotype of *S. guatemalensis* here designated: AMES ill. 23720 of the holotype); Cerro Negro, Sierra de los Cuchumatanes, alt. 1600-2000 m, 31 Aug. 1942, *J.A. Steyermark 51705* (AMES). **Alta Verapaz**: Trece Aguas near Senahú, 25 May 1905, *H. Pittier 351* (AMES); Pansamalá, near Cobán, alt. 1350-1400 m, Aug. 1885, *H. von Türckheim 698* (holotype of *S. patula* presumably destroyed at B; lectotype here designated: AMES 72169; lectotypes: BR, US); near Pansamalá, *H. von Türckheim II-1478* (B?); Cobán, alt. 1350 m, Aug. 1907, *H. von Türckheim II-1916* (AMES, BR); vicinity of Cobán, alt. 3000 ft., 1 Aug. 1920, *H. Johnson 553* (AMES).
MEXICO: **Chiapas**: Lake Montebello east of Comitán, alt. 1350 m, July 1936, *O. Nagel 5462, 5482* (AMES, MO); Ocosingo, Laguna Ocotalito, alt. 950 m, 23 Apr. 1987, *G. Salazar et al. 3078* (AMO).
COSTA RICA: **Cartago**: La Estrella, 24 July 1925, *C.H. Lankester 1014, 1029* (AMES).
COLOMBIA: **Nariño**: northeast of Pasto, alt. 2600 m, 11 Jan. 1981, *A. Gentry et al. 30461* (MO).
ECUADOR: **Carchi**: between Tulcán and Maldonado, alt. 3000 m, 2-4 Apr. 1984, *C. Luer, S. Dalström & T. Höijer 9950, 9954* (MO).
Sucumbíos: road cut southeast of El Carmelo, alt. 2700 m, 17 May 1981, *C. Luer et al. 6282* (SEL); between Tulcán and El Carmelo, alt. 3200 m, 7 July 1990, *C.H. Dodson, E. Hagsater, D. Rubio & N. Rivera 18412* (MO).
Napo: between Papallacta and Baeza, alt. 2800 m, 5 June 1973, *L. Holm-Nielsen, S. Jeppesen, B. Løjtnant & B. Ølgaard 6851* (AAU, AMES, SEL); new road east of Salcedo, Río Anatenario, alt. 2800 m, 27 May 1979, *B. Løjtnant, A. & U. Molau 13817* (GB); terrestrial on road cut below Papallacta, alt. 2700 m, 15 May 1981, *C. Luer et al. 6243* (SEL);
Tungurahua: Valle de Chaupe above Baños, alt. 2200 m, 24 July 1975, *C. Luer, G. Luer & S. Wilhelm 369* (SEL); Llanganates, Leito, alt. 3100 m, 11 Apr. 1985, *C. Luer, J. Luer, A. Hirtz & W. Flores 11134, 11146* (MO).
Chimborazo: below Pallatanga, alt. 2250 m, 19 Mar. 1985, *C. Luer, J. Luer, A. Hirtz & W. Flores 10656* (MO).
Morona-Santiago: terrestrial on a road cut east of Sigsig, alt. 3100 m, 15 May 1988, *C. Luer, A. Hirtz, W. Flores, A. Andreetta & W. Teague 13338* (K, MO).
BOLIVIA: **Cochabamba**: road to Villa Tunari, alt. 1900 m, collected Nov. 1978, flowered in cultivation 8 May 1979, *C. Luer 4062* (SEL).

This species was described by Schlechter twice, 13 years apart, from two collections from Guatemala. It is very similar to *Stelis pardipes* Rchb.f., differing mostly in the apices of the petals and lip. It could be merely a variation of the common *S. pardipes*. Both concepts are tall and slender, with a long, subdensely many-flowered raceme of small, nutant flowers. The lateral sepals are connate to about the middle, but adherent to their apices into a deeply concave synsepal. The petals are broadly triangular with the thickened apices obtuse, and often contracted into a short, pointed apex, shorter than the long-pointed process of *S. pardipes*. The lip is subquadrate with the apex triangular and acute. The apex of the lip of *S. pardipes* is abruptly long-triangular, longer than the body of the lip.

Stelis guatemalensis is common and widely distributed in Central America and the Andes as far south as central Bolivia. It is distinguished from *S. pardipes* by its deeply concave synsepal without recurving margins; broadly obtuse, very shortly acuminate petals; and a lip with a subquadrate body and an apiculum only half or less as long as that of *S. pardipes*.

322. **Stelis jatunyacuënsis** Luer & Hirtz, sp. nov.

Ety.: Named for the area around Río Jatunyacu where the species was collected.

Species haec *Stelidis patenti* Luer & Hirtz affinis, sed racemo flexuoso folio breviore, sepalis carnosis brevioribus et petalis proportione minoribus differt.

Plant very small, epiphytic, caespitose; roots slender. Ramicauls erect, slender, 5-9 mm long, enclosed by 2 tubular sheaths. **Leaf** erect, coriaceous, elliptical, subacute, 15-22 mm long including a petiole 2-3 mm long, the blade 6-8 mm wide, cuneate below into the petiole. **Inflorescence** an erect, lax, flexuous, nearly simultaneous, few-flowered raceme, 20-25 mm long including the peduncle 10-12 mm long, from near the apex of the ramicaul; floral bracts oblique, acute, 2 mm long; pedicels 1.5 mm long; ovary 2 mm long; flowers gaping, dark red, **sepals** glabrous, fleshy, the dorsal sepal erect, broadly ovate, obtuse, 4 mm long, 3.75 mm wide, 5-veined, connate basally to the synsepal for 1 mm, the lateral sepals obliquely ovate, acute, connate below the middle into an ovoid, bifid, concave synsepal, each 3.5 mm long, 2.75 mm wide, 4-veined; **petals** transversely ovate-triangular, shallowly concave within the broadly thickened apex and below a transverse callus, 0.8 mm long, 1.25 mm wide, 3-veined; **lip** thickly subtriangular, shallowly concave and broadly rounded at the apex with a broad, thickened margin, 0.5 mm long, 1 mm wide, 0.8 mm deep, the bar shallowly notched with a glenion, the dorsum with an orbicular, densely pubescent, central callus, the base truncate, hinged to the base of the column; **column** stout, 0.5 mm long, 1 mm wide, the foot obsolescent, the anther and the bilobed stigma apical.

Napo: along Río Jatunyacu, above Shandia, alt. 650 m, 12 Aug. 1991, *A. Hirtz & S. Ortega 5374* (Holotype of *S. jatunyacuënsis*: MO), C. Luer 20958.

This very small species, known only from the original collection, is most similar to *Stelis patens* Luer & Hirtz. Two to five flowers are borne in a loose, flexuous raceme that nearly equals the leaf in length. The small, dark red flowers are fleshy. The erect dorsal sepal is broadly ovate and five-veined, the petals have a broadly thickened margin and are three-veined; and the lip is shallowly concave anteriorly with the obtuse margin broadly thickened, and with a densely pubescent, orbicular callus on the dorsum.

323., 323a., 323b. Stelis langlassei Schltr., Repert. Spec. Nov. Regni Veg. Beih. 7: 89, 1920.

Ety.: Named for Eugene Langlassé who collected this species.

Stelis tonsoria Luer, Phytologia 49: 239, 1981.
Ety.: From the Latin *tonsorius*, "pertaining to barbering," in allusion to the red-striped sepals.

Plant medium in size, epiphytic, densely caespitose; roots slender. Ramicauls erect, slender, 2-8 cm long, enclosed by a loose, tubular sheath from below the middle and another sheath at the base. **Leaf** erect, coriaceous, elliptical, subacute to obtuse, petiolate, 5-11 cm long including the petiole 1.5-2 cm long, 1.5-2.5 cm wide, cuneate below into the petiole. **Inflorescence** an erect, congested, distichous or secund, many-flowered raceme with about half the flowers open simultaneously, 5-11 cm long including the peduncle 1-2 cm long, from an annulus below the apex of the ramicaul with a spathe 5-12 mm long; floral bracts infundibular, oblique, 3-6 mm long, engulfing the base of the flower; pedicels 1-2 mm long; ovary 1.5 mm long; flowers bilabiate; **sepals** glabrous, dull white suffused with purple, usually along the veins, the dorsal sepal erect, ovate, obtuse, 10 mm long, 3.75 mm wide, 5-veined, connate 2.5 mm to the synsepal, the lateral sepals connate into a broadly ovate, deeply concave synsepal, 6 mm long, 8 mm wide expanded, 6-veined; **petals** white, thick, triangular, with the apex "V-shaped," with the margin broad, with a small, slender apiculum, 1.2 mm long, 1.2 mm wide, concave at the base; **lip** white, thick, subquadrate, long-apiculate, 1-1.2 mm long, 0.8-1 mm wide, 0.5 mm deep, the apex abruptly contracted into a subulate apiculum 0.8 mm long, the disc broad with a low, lobed callus, with a shallow cavity on the anterior surface at the base of the apiculum, the base truncate, hinged to the base of the column; **column** stout, 0.8 mm long, the foot obsolescent, the anther and the bilobed stigma apical.

COLOMBIA: **Cauca**: Cordillera Occidental, alt 1200 m, 8 Dec. 1899, *E. Langlassé 101* (Holotype of *S. langlassei* destroyed at B; Lectotype: K; Isotypes: AMES, G).
Nariño: forest above Ricaurte, alt. ca. 1600 m, 3 Nov. 1979, *C. Luer. J. Luer, K. Walter & A. Hirtz 4579* (holotype of *S. tonsoria*: SEL).
ECUADOR: **Carchi**: near Maldonado, collected by Bill Cullina, cultivated by P. Jesup in Bristol, CT, 30 May 1997, *C. Luer 18491* (MO).
Imbabura: Selva Alegre, collected July 1991, cultivated in Chamblee, GA, 29 Nov. 1991, *F L Stevenson 91-1031-1* (MO); Los Cedros Reserve, wet forested ridge, alt. 1700 m, 21 Jan. 1993, *S. Dalström, T. Höijer & H. Wanntorp 1711* (MO).
Pichincha: road to Malatos between Chiriboga and Santo Domingo, alt. 1300 m, Jan. 1989, *A. Hirtz 3962* (MO), C. Luer illustr. 19476; km. 85 between Santo Domingo and Chiriboga, alt. 1200 m, 16 Feb. 1991, *C.H. Dodson, M. Whitten & A. Embree 18663* (MO).

This species, known from southernmost Colombia and northern Ecuador, is characterized by a densely caespitose habit; a short, congested, several-flowered raceme; long, dull white sepals with recurved sides, suffused with purple or sometimes with purple stripes; and "V-shaped" petals with broadly thickened margins with an apiculum. The long-apiculate lip is similar to that of *Stelis bicornis* Lindl.

324. Stelis maxima Lindl, Ann. Mag. Nat. Hist. ser. 1, 15: 106, 1845.

Ety.: From the Latin *maximus*, "very large," referring to the flowers.

Syn.: *Steliopsis anneliesae* Brieger, Orchideen 8(29-32): 457, 1976, nom inval.
Ety.: Named for Anne Liesa, wife of Friedrich Gustav Brieger (1900-1985).

Plant large, epiphytic, caespitose to scandent; roots slender. Ramicauls erect, stout, prolific, up to 15 cm long below, and 4 cm long above, enclosed by 2-3 close, tubular sheaths. **Leaf** erect, coriaceous, elliptical, acute to subacute, 6-11 cm long, 1.5-2.5 cm wide, cuneate below into a petiole 1-1.5 cm long. **Inflorescence** an erect, congested, distichous, many-flowered raceme with many flowers open simultaneously, 15-27 cm long including the peduncle 10-11 cm long, subtended by a spathe 2-3 cm long, from an annulus below the apex of the ramicaul; floral bracts oblique, acute, 10 mm long below, 5 mm long above; pedicels 4-5 mm long; ovary 3-5 mm long; flowers bilabiate, purple; **sepals** glabrous, the dorsal sepal erect, ovate, subacute, 14 mm long, 10 mm wide, 11-veined, connate basally to the synsepal, the lateral sepals connate into a broadly ovate, shallowly concave synsepal, 12 mm long, 14 mm wide, 15-veined; **petals** purple, transversely obovate, 2 mm long, 2.2 mm wide, the apex rounded, broadly thickened, concave basally below a transverse callus; **lip** purple, subquadrate, 1 mm long, 2 mm wide, 1.2 mm deep, concave above the broadly rounded, thick apical margin, the bar with a narrow glenion, the dorsum filled with an obscurely trilobed, microscopically pubescent callus, the base truncate, hinged to the base of the column; **column** stout, 1 mm long, 2 mm wide, 1.2 mm deep, the foot obsolescent, the anther and the bilobed stigma apical.

ECUADOR: **Tungurahua**: at the foot of Mt. Tungurahua, alt. 11,000 ft., *T. Hartweg 1407* (Holotype of *S. maxima*: K; Isotypes: G, LD, LE, W); Tungurahua, alt. 7,500 ft., May, 1858, *R. Spruce 5383* (BM, K, W); slopes of Tungurahua above Baños, alt. 3000 m, 27 Mar. 1984, *C. Luer, S. Dalström et al. 9756* (MO); Tungurahua, alt. 2700 m, 11 Nov. 1984, *A. Hirtz 2094* (MO); Cordillera de los Llanganates, Leito, alt. 2870 m, 11 Apr. 1985, *C. Luer, J. Luer, A. Hirtz & W. Flores 11137* (MO).
Sucumbíos: scrub forest south of Santa Barbara, alt. 2700 m, 5 Apr. 1984, *C. Luer, S. Dalström & T. Höijer 9967* (MO).
Carchi: north of El Playón, alt. 3100 m, 20 Mar. 1991, *C. Luer, J. Luer & A. Hirtz 15187* (MO).
Napo: between Cuyuja and Papallacta, alt. 2800-2900 m, 5 June 1973, *L. Holm-Nielsen et al. 6856* (AAU, AMES).
Morona-Santiago: Río Altarurco, east of Sigsig, alt. 2800 m, 13 Apr. 1968, *G. Harling, G. Storm & B. Ström 8287* (GB).
Azuay: Río Altarurcu, east of Sigsig, alt. 2800 m, 13 Apr. 1968, *G. Harling, G. Storm & B. Ström 8287* (AAU, AMES).

This large species, found on the eastern slopes of the Andes of Ecuador, is similar to *Stelis allenii* L.O.Williams, of Panama and northwestern Ecuador. It was first collected by Hartweg on Volcan Tungurahua a century and a half ago. It is differs from *S. allenii* by commonly prolific ramicauls, a looser raceme with smaller bracts, but with a larger spathe. The sepals are similarly multiveined; the dorsal sepal is broadly ovate. The petals are as long as wide with a round, thick-margined apex. The lip is concave above the rounded apex with a relatively thin margin. *Stelis allenii* and *S. maxima* could be considered to be geographical variations of one variable species.

325. Stelis mucronata Lindl., Folia Orchid. *Stelis* 18(132), 1858.

Ety.: From the Latin *mucronatus*, "mucronate," referring to the tips of the leaves.

Plant small, epiphytic, long-scandent, vine-like; roots slender. Ramicauls ascending, slender, prolific, from 10 cm long below to 3 cm long above, enclosed by a tubular sheath from below the middle and another sheath at the base. **Leaf** erect, coriaceous, narrowly elliptical, acute, petiolate, 4-8 cm long including the petiole 0.5-1 cm long, 0.5-1.5 cm wide, cuneate below into the petiole. **Inflorescence** an erect, distichous, densely many-flowered raceme with many flowers open simultaneously, 7-10 cm long including the peduncle 1-2 cm long, from an annulus below the apex of the ramicaul; floral bracts ob-

lique, 2 mm long; pedicels 1.5 mm long; ovary 0.75 mm long; flowers resupinate, bilabiate, light green to purple; **sepals** glabrous externally, microscopically pubescent within, the dorsal sepal erect, ovate, obtuse, 3 mm long, 2 mm wide, 3-veined, connate 0.25 mm basally to the synsepal, the lateral sepals connate into a broadly or transversely ovate, concave synsepal, 2 mm long, 3 mm wide, 4-(6-)veined; **petals** transversely obovate, 0.75 mm long, 1 mm wide, 3-veined, the apex broadly obtuse, shortly acuminate-acute, concave above the base, the base broadly truncate; **lip** thick, subquadrate, 0.4 mm long, 0.4 mm wide, 0.3 mm deep, the apex triangular, acute, shallowly concave, the bar with a concave glenion, the dorsum with an obscurely lobed, microscopically pubescent callus, the base truncate, hinged to the base of the column; **column** stout, 0.5 mm long, 0.5 mm wide, the foot obsolescent, the anther and the stigma apical, the stigma bilobed.

ECUADOR: **Pichincha**: without locality, *W. Jameson s.n.* (Holotype of *S. mucronata*: K); without locality, 1855, *J.P. Couthouy s.n.* (AMES); terrestrial on road-cut between Quito and Santo Domingo, alt. ca. 2000 m, 1 Mar. 1975, *C. Luer & R. Kent 263* (SEL); between San Juan and Chiriboga, alt. 1800-2200 m, 7 Mar. 1982, *A. Hirtz & X. Leon 211* (SEL); old road Quito to Santo Domingo, Río Guajalito, alt. 1800-2000 m, 10 Aug. 1985, *J. Jaramillo & V. Zak 7982* (QCA); mining road above Toachi, alt. 2000 m, 17 Feb. 1982, *A. Hirtz & X. Leon 101* (SEL); between Nono and Tandayapa, alt. 2600 m, 13 Mar. 1982, *C. Luer, A. Hirtz & S. Dalström 7286* (SEL); between Calacalí and La Liberia, alt. 2250 m, 7 Apr. 1984, *C. Luer, S. Dalström, T. Höijer & A. Hirtz 10004* (MO).
Cotopaxi: between Quevedo and Latacunga, alt. 2300 m, 8 Apr. 1973, *L. Holm-Nielsen, S. Jeppesen, B. Løjtnant & B. Ølgaard 3207* (AAU, AMES).

Apparently endemic in western Ecuador, this species is related to the common *Stelis bicornis* Lindl., but it is distinguished from the latter by a smaller habit and smaller flowers with the broad tips of the petals and lip that are merely acuminate-acute. The petals and lip of the latter are long-apiculate. Vegetatively, *Stelis mucronata* is similar to *S. biserrula* Lindl. with smaller flowers, but unlike *S. biserrula*, the petals and lip are not long-apiculate.

Stelis dissimulans Luer & Dodson with similar habit and pointed petals and lip differs in having nearly free, widely spread, ovate sepals as in section *Stelis*.

326. Stelis nana Lindl., Fol. Orchid. *Stelis* 16(122), 1858.

Ety.: From the Latin *nanus*, "small," referring to the habit.

Plant small, epiphytic, caespitose; roots slender. Ramicauls erect, stout, 2-3 cm long, enclosed by a tubular sheath and another sheath below. **Leaf** erect, coriaceous, elliptical, subacute to acute, 5-7 cm long including a petiole 1-1.5 cm long, the blade 1.5-1.7 cm wide in the dried state, cuneate below into the petiole. **Inflorescence** a congested, distichous, simultaneously several-flowered raceme 3-6 cm long, including the peduncle ca. 2 cm long, from an annulus below the apex of the ramicaul; floral bracts infundibular, inflated, obtuse, 3 mm long; pedicels 1 mm long; ovary 2 mm long; **sepals** glabrous, membranous, the dorsal sepal thicker than the lateral sepals, convex, broadly elliptical, broadly obtuse or rounded at the apex, 4 mm long, 3 mm wide, 5-veined, connate basally to the synsepal for 1 mm, the lateral sepals connate into an ovate, obtuse synsepal, but separated in the specimen, each ovate, oblique, subacute, 3.5 mm long, 3 mm wide, 3-veined; **petals** thickly fleshy, transversely semilunate, with the apex broadly rounded, cellular, concave above the base, below a transverse callus, 0.75 mm long, 1 mm wide, 3-veined; **lip** semilunate, broadly rounded at the apex, shallowly concave above the broad margin, 0.3 mm long, 0.8 mm wide, 0.8 mm deep, the bar with a small glenion that is continuous with a rounded callus on the dorsum, the base truncate, hinged to the base of the column; **column** stout, 0.5 mm long, 1 mm wide, the foot obsolescent, the anther and the bilobed stigma apical.

ECUADOR: without collection data, *W. Jameson s.n.* (Holotype of *S. nana*: K), C. Luer illustr. 19943.
Zamora-Chinchipe: above Valladolid on road to Yangana, alt. 2300 m, 1 Feb. 1985, *G. Harling & L. Andersson 21425* (GB).

This species is one of the few species of *Stelis* described by Lindley that had eluded all collectors until a recent collection was made by Harling and Anderson in southeastern Ecuador. The original locality was unknown. The Peruvian *Stelis tessmannii* Mansf. might be synonymous.

Stelis nana is a small plant about 10 centimeters tall with a large-bracted, simultaneously flowered raceme up to about as long as the leaf. The dorsal sepal is broadly elliptical with five veins and lateral sepals are partially connate into a

concave synsepal. The petals are transverse and three-veined with a thickened margin, and the lip is type-A.

A collection of an unidentified species of section *Stelis* was erroneously identified from Peru by Bennett and Christenson as *S. nana* in Icon. Orchid. Peruv., t, 769, 2001.

327., 327a. Stelis nutans Lindl., Folia Orchid. *Stelis* 15(109), 1858.

Ety.: From the Latin *nutans*, "nodding," referring to the attitude of the flowers.

Syn.: *Stelis manabina* Dodson & Garay, Ic. Pl. Trop. 327, 1980.
Ety.: Named for the province of Manabí where the species was collected.

Plant medium to large in size, epiphytic, ascending-caespitose; roots slender. Ramicauls erect, slender, 5-22 cm long, enclosed by a close, tubular sheath near the middle and 2-3 sheaths about the base. **Leaf** erect, coriaceous, elliptical, acute, 6-15 cm long including a petiole 2-3 cm long, 1.5-3.5 cm wide; **Inflorcence** 1-3 erect, congested, distichous, many-flowered racemes, with almost all flowers open simultaneously, 8-17 cm long including the peduncle 1-2.5 cm long, from a spathe 5-15 mm long at an annulus below the apex of the ramicaul; floral bracts thin, oblique, acute, 1-2 mm long; pedicels 1-1.5 mm long; ovary 1 mm long; **sepals** yellow, green, to pale rose, microscopically pubescent, the dorsal sepal ovate, obtuse, 2.5-3.5 mm long, 1.5-2 mm wide, 3-veined, connate basally to the laterals for 0.5 mm, the lateral sepals ovate, oblique, 2-2.5 mm long, 1.5-2 mm wide, 3-veined, connate below the middle, connivent above as an ovoid, bifid synsepal; **petals** green, yellow to purple, transversely obovate, thickened above the middle and at the apex, broadly obtuse, 0.6-0.75 mm long, 0.8-1 mm wide, 3-veined; **lip** green to purple, thick, oblong-subquadrate, 0.5 mm long, 0.6-0.8 mm wide, 0.4 mm deep, the apex broadly rounded, shallowly concave, the bar thick with a glenion, the dorsum with a 3-lobed callus, the base broadly truncate, hinged to the base of the column; **column** stout, 0.8 mm long, 0.8 mm wide, the anther and the stigma apical, the stigma bilobed, the foot obsolescent.

Selected representative collections:
ECUADOR: **Pichincha**: forest of Nanegal, *W. Jameson s.n.* (Holotype of *S. nutans*: K; Isotype: W)); Calacalí, alt. 1800 m, 28 Nov. 1880, *F.C. Lemann 366* (W); old road between Quito and Santo Domingo, alt. 1500 m, 14 Aug. 1975, *C. Luer, G. Luer & S. Wilhelm 635* (SEL); mining road above Minas Toachi, alt. 2000 m, 27 Feb. 1982, *A. Hirtz & X. Leon 102* (SEL); near Chiriboga, alt. 2000 m, 7 Mar. 1982, *C. Luer & A. Hirtz 7229* (SEL); below Tandapi, alt. 1180 m. 31 Jan. 1987, *C. Luer, J. Luer & A. Hirtz 12557* (MO); Los Bancos, alt. 1650 m, 25 Feb. 2001, *S. Dalström & L. Jost s.n.* (MO).
Carchi: between Maldonado and Chical, alt. 1500 m, 15 Jan. 1992, *C. Luer, J. Luer, A. & P. Jesup 16019* (MO).
Sucumbíos: east of El Carmelo, alt. 2500 m, 17 May 1981, *C. Luer, J. Luer & A. Hirtz 6293* (SEL).
Manabí: near summit of Montecristi east of Manta, alt. 500 m, 8 Jan. 1978, *C. Luer & J. Luer 2273* (holotype of *S. manabina*: SEL).
Imbabura: Selva Alegre, alt. 1400 m, May 1989, *A. Hirtz & X. Hirtz 4234* (MO).
Bolívar: between Guaranda and Echeandia, alt. 945 m, July 1991, flowered in cultivation, 15 Jan. 1993, *F L Stevenson 93-0116-7* (MO).
Morona-Santiago: near Linón, cultivated by Ecuagenera, 17 Apr. 2001, *A. Hirtz 7702* (MO); Macas, collected by and flowered in cultivation by E. Sánchez, 26 July, 2004, *A. Hirtz 8849* (MO).
El Oro: near the mines above Zaruma, alt. 1500 m, Mar. 1982, flowered in cultivation 8 Feb. 1984, *C. Luer 9481, 9482* (SEL); forest above Zaruma, alt. 1800 m, 23 Feb. 1986, *C. Luer, J. Luer, A. Hirtz, W. Flores & A. Embree 12024* (MO).
Azuay: Lago Zorogucho, southwest of Cuenca, alt. 3000 m, Aug. 1977, cultivated 15 Jan. 1978, *C. Luer 2281* (SEL).
Loja: between Zaruma and La Toma, alt. 1900 m, 2 Feb. 1987, *C. Luer, J. Luer & A. Hirtz 12572* (K, MO).

This species is variable, widely distributed and frequent in the Andes of Ecuador. Variations include *Stelis manabina* Dodson & Garay, which has shorter racemes. The species is characterized by an ascending-caespitose habit with long, slender ramicauls, and an elliptical, long-petiolate leaf. One or a few slender, densely flowered racemes surpass the leaf. The lateral sepals are partially connate and connive to create a synsepal; the petals are thick with thickened margins; and the lip is subquadrate and shallowly concave above the rounded apex.

328. **Stelis odobenella** Luer, Phytologia 49: 232, 1981.

Ety.: Named for the genus of walrus *Odobenus* L., in allusion to the tusk-like stigmatic processes.

Plant small, epiphytic, caespitose; roots slender. Ramicauls erect, slender, 7-17 mm long, enclosed by 2-3 thin, tubular sheaths. **Leaf** erect, coriaceous, elliptical, subacute to obtuse, 18-35 mm long including a petiole 5-13 mm long, 5-8 mm wide, cuneate below into the petiole. **Inflorescence** a suberect, flexible, flexuous, lax, few-flowered raceme with 1-2 flowers open simultaneously, 5-6 cm long including the peduncle 2-3 cm long, from an annulus below the apex of the ramicaul; floral bracts infundibular, acute, 1.5 mm long; pedicels 1.5 mm long; ovary 1 mm long; flowers bilabiate; **sepals** glabrous, the dorsal sepal purple, erect, broadly ovate, obtuse, 5 mm long, 4 mm wide, 3-veined, connate basally to the synsepal for 1 mm, the lateral sepals yellow, connate into a broadly ovoid, deeply concave synsepal, 4 mm long, 4 mm wide unexpanded; **petals** purple, transversely semilunate with acute ends, 0.5 mm long, 1.25 mm wide, 3-veined, concave basally, thickened transversely across the middle, the apex rounded, broadly thickened and flatterned on the margin; **lip** purple, transversely obovoid-subpyramidal, 0.6 mm long, 0.6 mm wide, the anterior surface with a pair of rounded, mammilliform calli, the apex broadly rounded, incurved, retuse, transversely thickened across the base with a large tall, rounded callus that occupies the dorsum, traversed with a purple glenion, the base truncate, hinged to the base of the column; **column** stout, 0.5 mm long, 0.6 mm wide, the foot obsolescent, the anther and the bilobed stigma apical, each stigma with a tusk-like process 0.5 mm long.

ECUADOR: **Morona-Santiago**: wet forest above Limón, alt. 2200 m, 17 Sept. 1980, *C. Luer & J. Luer 5456* (Holotype of *S. odobenella*: SEL); between San Juan Bosco and Gualaceo, alt. 2500 m, 28 Mar. 1985, *C. Luer, J. Luer, A. Hirtz & W. Flores 10996* (MO); along river between Gualaceo and Limón, alt. 2200 m, 16 Jan. 1986, *S. Dalström & T. Höijer 1048* (MO); east of the pass between Gualaceo and Limón, alt. 2150 m, 16 Feb. 1986, *C. Luer, J. Luer, A. Hirtz, W. Flores & A. Embree 11845* (K, MO); same area alt. 2150 m, 14 Jan. 1989, *C. Luer et al. 13882* (MO); between Cuenca and Plan de Milagro (Limón), alt. 2200 m, 7 Jan. 1995, *A. Hirtz et al. 6121* (MO).
Pastaza: between Baños and Puyo, alt. 1270 m, *A. Hirtz 2023* (MO).
Loja: Numbala above Valladolid, alt. 1700-2000 m, July 1986, *D. D'Alessandro 730* (MO).

This little species, apparently common in a small area of southeastern Ecuador, is very similar in habit and florally to *Stelis opercularis* Luer, but *S. odobenella* is most remarkable for the long, tusk-like processes of the stigmatic lobes. The lips demonstrate a close relationship with the tall callus that occupies the dorsum, but an anterior pair of mammilliform calli distinguishes *S. odobenella*, and a posterior, pyramidal callus distinguishes *S. opercularis*.

329. **Stelis opercularis** Luer, Phytologia 49: 233, 1981.

Ety.: From the Latin *opercularis*, "with a lid," referring to the dorsal sepal.

Plant small, epiphytic, caespitose; roots slender. Ramicauls erect, slender, 3-6 mm long, enclosed by 2-3 thin, tubular sheaths. **Leaf** erect, coriaceous, elliptical-obovate, subacute to obtuse, 12-25 mm long including a petiole 3-10 mm long, 3-7 mm wide, cuneate below into the petiole. **Inflorescence** a suberect, flexible, flexuous, lax, several-flowered raceme with 1-3 flowers open simultaneously, 3-10 cm long including the peduncle 1.5-4 cm long, from an annulus below the apex of the ramicaul; floral bracts infundibular, acute, 1-1.5 mm long; pedicels 1.5 mm long; ovary 1 mm long; flowers bilabiate, sensitive; **sepals** glabrous, the dorsal sepal purple, erect, broadly ovate, obtuse, 3.5-4 mm long, 3-4 mm wide, 3-veined, connate basally to the synsepal for 1 mm, the lateral sepals purple to pale yellow, connate into a broadly ovoid, deeply concave synsepal, 3 mm long, 3.5-4 mm wide unexpanded; **petals** purple, transversely obovate, 0.3-0.6 mm long, 1-1.2 mm wide, 3-veined, the apex broadly rounded, thickened, the base concave; **lip** purple to light green, thick, transversely subovoid, 0.5-0.75 mm long, 0.6-0.8 mm wide, 0.5 mm deep, shallowly concave anteriorly with the apex broadly rounded, flattened and thickened, the bar tall with a central, depressed glenion, the dorsum with a central, erect, rounded callus, the base truncate, hinged to the base of the column; **column** stout, 0.5 mm long, 0.6 mm wide, the foot obsolescent, the anther and the bilobed stigma apical.

ECUADOR: **Morona-Santiago**: forest between Limón and Gualaquiza, alt. 1600 m, 19 Sept. 1980, *C. Luer, J. Luer, C. Dodson et al. 5500* (Holotype of *S. opercularis*: SEL).
Zamora-Chinchipe: Cordillera del Condor, east of Paquisha, alt. 1200 m, 19 Feb. 1986, *C. Luer, J. Luer, A. Hirtz, W. Flores & A. Embree 11929* (MO); south of the pass south of Yangana, alt. 2000 m, 18 Mar. 1984, *C. Luer, S. Dalström, T. Höijer & J. Kuijt 9605* (MO).

The sepals of this little species are basically similar to many others in this section: a broad dorsal sepal standing erect over a concave synsepal. Also as seen in many of the others, the flowers are sensitive, closing in the afternoon or when disturbed. The petals of this species are transversely oblong. The lip is small, shallowly concave anteriorly with a broad, rounded, thickened margin. The bar stands erect with a marginal glenion above the margin, while a small, solitary callus is on the downward sloping dorsum.

330., 330a. Stelis pardipes Rchb.f., Beitr. Orchid. Centr.-Amer. 96, 1866.

Ety.: From the Latin *pardipes*, "a foot spotted like a leopard," referring to the cauline sheaths.

Syn.: *Stelis longicuspis* Schltr., Repert. Spec. Nov. Regni Veg. 9: 28, 1910.

Ety.: From the Latin *longicuspis*, "with a long tooth," referring to the petals and lip.

Syn.: *Stelis albertii* Schltr., Repert. Spec. Nov. Regni Veg. Beih. 19: 170, 1923.

Ety.: Named for Albert M. Brenes who collected this species.

Syn.: *Stelis triseta* Lindl. var. *pardipes* (Rchb.f.) C.Schweinf., Bot. Mus. Leafl. Harvard Univ. 15: 24, 1951.

Plant small to medium in size, epiphytic, caespitose; roots slender. Ramicauls erect, slender, 3-11 cm long, nonprolific, enclosed by a tubular sheath near the middle and 2-3 other sheaths at the base. **Leaf** erect, coriaceous, narrowly elliptical-oblong, with the apex subacute to acute, 7-10 cm long including the petiole 1-1.5 cm long, 0.5-2 cm wide, narrowly cuneate below into the petiole. **Inflorescence** an erect, congested to subcongested, distichous to secund, many-flowered raceme with many flowers open simultaneously, 6-20 cm long including the peduncle 1-3 cm long, from an annulus below the apex of the ramicaul; floral bracts infundibular, 2 mm long; pedicels 1-2 mm long; ovary 1.5 mm long; flowers nutant, bilabiate; **sepals** light green, rose to purple, microscopic-pubescent to cellular-glandular within, the dorsal sepal erect, ovate, obtuse, slightly convex, 3-4 mm long, 2 mm wide, 3-veined, connate basally to the synsepal, the lateral sepals connate into a broadly ovate, deeply concave synsepal, 1.5-2.5 mm long, 2.5-3 mm wide unexpanded, 4-veined; **petals** light green to purple, cuneate-obovate, 0.5-1.3 mm long including the apex, 0.5-1 mm wide, the apex obtuse with the margin thickened, long-apiculate, concave below the middle, the base broadly truncate; **lip** green to purple, thick, subquadrate, 0.5-1.25 mm long, 0.5-0.6 mm wide, 0.4 mm deep, the apex abruptly acute, acuminate into a slender process 0.5 mm long, the bar with a shallow glenion on the anterior surface, the dorsum with a low, trilobed callus above the base, the base truncate, hinged to the base of the column; **column** stout, 0.5 mm long, 0.5 mm wide, the foot obsolescent, the anther and the stigma apical, the stigma bilobed.

Selected representative collections:
COSTA RICA: **Heredia**: Desengaño, 9 May 1857, *H. Wendland 899* (Holotype of *S. pardipes*: W); Sitio Ortiz, Birris, *A. Endres s.n.* (W); vicinity of Vara Blanca, alt. 1680 m, Apr. 1938, *A.F. Skutch 3760* (K). **Alajuela**: La Palma, alt. ca. 1450 m, Nov. 1898, *A. Tonduz 12650* (holotype of *S. longicuspis* destroyed at B; San Pedro de San Ramón, alt. 1150 m, Nov. 1921, *A.M. Brenes 118* (holotype of *M. albertii* is fragment of type at AMES); Balsa, north of San Ramón, alt. 1000 m, 9 Aug. 1974, *P.J.M. Maas & R.W. Lent 1228* (K).
GUATEMALA: **Alta Verapaz**: above Senahu, Feb. 1981, alt. 1000 m, *C. Luer, J. Luer, M. & M. Dix 6330* SEL, neotype here designated for *Stelis longicuspis* Schltr., MO); Purulha, alt. ca. 1500 m, Feb. 1981, *C. Luer, J. Luer, M. Dix & M. Dix 6444* (SEL).
PANAMA: **Coclé**: El Valle, alt. ca. 1000 m, flowered in cultivation 4 Aug. 1976, *C. Luer 1039* (SEL).
ECUADOR: **Carchi**: between Tulcán and Maldonado, alt. 3400 m, 16 Mar. 1991, *C. Luer, J. Luer, J. del Hierro, A. & X. Hirtz 15052, 15054* (MO).
Imbabura: crest of mountain behind Río Blanco, between Ibarra and San Lorenzo, alt. 1400-1500 m, 14 Dec. 1941, *C.H. Dodson & L.B. Thien 1570* (SEL); Selva Alegre, alt. 2350, 1 May 1981, *C. Luer, J. Luer & A. Hirtz 6057* (SEL); Los Cedros Reserve, alt. 1500-1600 m, 23 Mar. 1996, *S. Dalström, S. Ingram & K. Ferrell-Ingram 2196* (MO).
Pichincha: old road between Quito and Santo Domingo, alt. ca. 2100 m, 12 Mar. 1976, *C. Luer, J. Luer & P. Taylor 811, 812* (SEL); west of Calacalí, alt. 2100 m, 4 Apr. 1985, *C. Luer, J. Luer, A. Hirtz, C. & P. Dodson 11037* (MO).
Guayas: Cordillera Chongón-Colonche, alt. 600 m, 9 Oct. 1998, *X. Cornejo & C. Bonifaz 6654* (GUAY).

Napo: north of Baeza, alt. 1500 m, 10 Aug. 1978, *C. Luer, J. Luer, A. Hirtz & A. Andreetta 3195* (SEL); old road to Coca, Río Aguarico, 29 June 1980, *J. Jaramillo & F. Coello 2658* (QCA).
Tungurahua: between Hda. Victoria and Río Topo, alt. 1230 m, 23 Mar. 1939, *W.C. Penland & R.H. Summers 234* (AMES, COCO); Río Negro, 31 May 1968, *G. Harling, G. Storm & B. Ström 9991* (AMES, GB); Cordillera de los Llanganates, Leito, alt. 2870 m, 11 Apr. 1985, *C. Luer, J. Luer, A. Hirtz & W. Flores 11134* (MO).
Chimborazo: forest below Pallatanga, alt. 2250 m, 19 Mar. 1985, *C. Luer, J. Luer, A. Hirtz & W. Flores 10656* (MO).
Morona-Santiago: Indanza to Limón, alt. 1300-1600 m, 23 Mar. 1974, *G. Harling & L. Andersson 12766* (AMES, GB); Plan del Milagro, alt. 1600 m, 24 Apr. 1985, *G. Harling & L. Andersson 24546* (AMES, GB); Cordillera del Condor, east of Guismé, alt. 1500 m, 18 Feb, 1986, *C. Luer, J. Luer, A. Hirtz et al. 11890, 11903* (MO).
Zamora-Chinchipe: between Loja and Zamora, alt. ca. 1500 m, July 1975, *C. Luer, G. Luer & S. Wilhelm 373* (SEL); Cordillera del Condor, Mayaycu, alt. 1300 m, 20 May 1988, *C. Luer et al. 13504* (MO).
PERU: **Ayacucho**: Aina, between Haunta and Río Apurimac, alt. 750-1000 m, 7-17 May 1929. *E.P. Killip & A.C. Smith* (AMES).
Junín: Pichis Trail, Dos de Mayo, alt. 1700-1900 m, 2-3 July 1929, *E.P. Killip & A.C. Smith 25806, 25883* (AMES).
Amazonas: Chachapoyas, alt. 3000 m, cultivated at Ecuagenera, Gualaceo, Ecuador, 5 July 2002, *A. Hirtz 8305* (MO).
Cuzco: Paucartambo, Kosñipata Valley, alt. 1800 m, 20 Mar. 1990, *P. Muñez 11994* (MO).
BOLIVIA: **La Paz**: Nor Yungas, below Chuspipata to Yolasa, alt. 2400 m, 23 Jan. 1983, *J.C. Solomon 9322* (MO); Nor Yungas, Río Unduavi, alt. 2650 m, 29 Jan. 1980, *C. Luer, J. Luer & R. Vásquez 5008* (SEL).
Cochabamba: old road from Cochabamba to Villa Tunari, alt. 1250 m, 30 Jan. 1997, *C. Luer, J. Luer, R. Vásquez, D. Ric & W. Teague 18321* (MO).

Stelis pardipes, common in Central America and the Andes, was described from a Costa Rican collection by Wendland. Reichenbach noted spots on the sheaths of the ramicauls on the specimen he described as *S. pardipes*. Beyond doubt, these spots were present on young or immature sheaths because they are not noted on subsequent collections.

Vegetatively, the plants are slender, usually with narrow leaves. The inflorescence is erect with two ranks of evenly spaced, little, nutant, bilabiate flowers, with abruptly acute, long-apiculate tips of the petals and lip. These tips are variable, varying in thickness and length, those of the petals sometimes reduced to merely a shortly acuminate apex, approaching those of *Stelis guatemalensis* Schltr.

331. **Stelis piperina** Lindl., Folia Orchid. *Stelis* 17(129), 1858.

Ety.: Named for the resemblance of the plant to a creeping *Peperomia*.

Plant small, epiphytic, long-repent, branching, up to ca. 15-20 cm long, rhizome stout, 5-15 mm long between ramicauls; roots slender. Ramicauls ascending, 1-1.5 cm long, enclosed by 2 ribbed, tubular sheaths with the margins minutely ciliate-papular. **Leaf** suberect or subpendent, coriaceous, elliptical, subacute to obtuse, 2-3 cm long including the petiole 0.5 cm long, 0.8-1.4 cm wide, cuneate below into the petiole. **Inflorescence** a pendent, sublax, distichous, simultaneously several-flowered raceme, 5-7 cm long including the peduncle 2-3 cm long, from near the apex of the ramicaul; floral bracts broadly ovate, cucullate, acuminate, acute, 4-5 mm long, engulfing pedicel, ovary and lower portion of the sepals; pedicels 1-1.5 mm long; ovary 1 mm long; **sepals** glabrous, the dorsal sepal light rose, erect, obovate, 5 mm long, 2.5 mm wide, 3-veined, the apex broadly rounded, convex, cellular-glandular within, connate to the synsepal for 1 mm, the lateral sepals light yellow-green, connate 1 mm and connivent into a broadly ovoid, deeply concave synsepal, each sepal obliquely obovate, obtuse, 2.5-3 mm long, 1.6-2 mm wide, 2-veined; **petals** green, transversely flabellate, 0.5 mm long, 1 mm wide, 3-veined, the apex broadly obtuse with the margin undulate. thickened; **lip** trilobed, 1 mm long, 0.6 mm wide, 0.3 mm deep, with the apex abruptly narrowly triangular, the blade transversely subquadrate, lateral lobes alate, obtuse, the disc channeled between the origins of the lateral lobes, the base truncate, hinged to the base of the column; **column** stout, 0.5 mm long, 0.8 mm wide, the foot obsolescent, the anther and the stigma apical, the stigma bilobed.

ECUADOR: **Pichincha**: western slopes of the Andes, 1854, *W. Jameson R.86* (Holotype of *S. piperia*: K; Isotype: W); Andes of Quito, alt. 8,000 ft., 21 Jan. 1856, *W. Jameson 45* (AMES, G); "Pichincha," *B. Løjtnant 11272* (AAU), C. Luer illustr. 8069; terrestrial on road cut, old road between Quito and Santo Domingo, alt. 1500 m, 10 Mar. 1975, *C. Luer & R. Kent s.n.* (SEL); between Quito and Chiriboga, alt.

2500 m, 6 Feb. 1979, *C. Luer, J. Luer & R. Escobar 3865* (SEL); between San Juan and Chiriboga, alt. 2500 m, 22 Mar. 1979, *B. Løjtnant & U. Molau 11272* (AAU, GB).
Imbabura: wet forest between Carolina and Buenos Aires, alt. 1950 m, 17 Jan. 1987, *C. Luer, J. Luer, A. Hirtz et al. 12350* (K, MO).
PANAMA: **Chiriquí**: without locality, collected by A. Maduro, flowered in cultivation by M. Behar in Guatemala, 26 Nov. 1990, *C. Luer 14824* (MO).

This species is distinguished by a repent habit with a stout rhizome enclosed by ribbed sheaths that are minutely ciliate-papillose along the margins. The pendent, several-flowered raceme exceeds the obtuse leaf. The floral bracts are dilated and surround the base of the flowers. The erect, dorsal sepal is broadly rounded at the convex apex. The considerably smaller lateral sepals are connivent into a deeply concave "pseudo synsepal." The petals are transversely flabellate with an undulating margin. The apex of the minute lip is subulate with a pair of minute, wing-like lobes.

332. **Stelis pollex** Luer & Hirtz, sp. nov.

Ety.: From the Latin *pollex*, "a thumb," referring to the prominent dorsal sepal.

Species haec *Stelidis piperinae* Lindl. similis, sed foliis ovatis acutis, synsepalo non profindissimo ut in typo, petalis rhombis, et labelli lamina non alata differt.

Plant small, epiphytic, long-repent, branching, up to ca. 40 cm long, rhizome stout, 10-20 mm long between ramicauls; roots slender. Ramicauls ascending, 1.5-20 cm long, enclosed by 2 ribbed, tubular sheaths with the margins minutely papillose. **Leaf** suberect or subpendent, coriaceous, ovate, acute, 2.5-3.5 cm long including the petiole 0.5 cm long, 0.8-1.2 cm wide, cuneate below into the petiole. **Inflorescence** a pendent, sublax, distichous, simultaneously several-flowered raceme, 4-6 cm long including the peduncle ca. 2 cm long, from near the apex of the ramicaul; floral bracts broadly ovate, oblique, acuminate, acute, 4 mm long, engulfing pedicel and ovary; pedicels 1.5 mm long; ovary 0.5 mm long; flowers white, **sepals** glabrous, the dorsal sepal erect, obovate, 5 mm long, 2.5 mm wide, 3-veined, the apex broadly rounded, convex, cellular-glandular within, connate to the synsepal for 0.5 mm, the lateral sepals connate less than 1 mm and connivent into a broadly ovoid, concave synsepal, each sepal oblique-ly ovate, acute, 3 mm long, 1.5 mm wide, 3-veined; **petals** rhombic, 1 mm long, 1 mm wide, 3-veined, the margin thickened with the apex angled 90°; **lip** trilobed, 1 mm long, 0.5 mm wide, 0.3 mm deep, with the apex oblong, acute, the blade transversely subquadrate, lateral lobes short, rounded, the disc featureless, the base truncate, hinged to the base of the column; **column** stout, 0.5 mm long, 0.8 mm wide, the foot obsolescent, the anther and the stigma apical, the stigma bilobed.

ECUADOR: **Pichincha**: above Tandapi, alt. 2600 m, Mar. 1983, *A. Hirtz 1268* (Holotype of *S. pollex*: MO), C. Luer illustration 21247.

This species, known from only the type collection, is similar to *Stelis piperina* Lindl. with a long-repent habit and similarly papillose margins of the sheaths, but with acute, ovate leaves. Also, little, pendent racemes bear their flowers in two opposite ranks with erect, over-sized dorsal sepals like protruding thumbs. The considerably smaller lateral sepals are connivent into a concave synsepal that is not as deep as in *S. piperina*. The petals are rhombic when expanded. The apex of the minute lip is acute, but the body of the lip is featureless without wings.

333. **Stelis pristis** Luer, Phytologia 49: 235, 1981.

Ety.: From the Greek *pristis*, "a sawfish," alluding to the raceme of flowers.

Plant small to medium in size, epiphytic, caespitose; roots slender. Ramicauls erect, slender, 4-7 cm long, enclosed by a loose tubular sheath from below the middle and 2-3 other sheathes at the base. **Leaf** erect, coriaceous, elliptical, petiolate, subacute to obtuse 4-8 cm long including a petiole 1.2-1.5 cm long, 1.5-2 cm wide, cuneate below into the petiole. **Inflorescence** an erect, congested, distichous, many-flowered raceme, with the flowers held perpendicularly to the rachis, many open simultaneously, 12-15 cm long including the peduncle 2-3 cm long, subtended by a slender spathe 1-1.2 cm long, from an annulus below the apex of the ramicaul; floral bracts oblique, inflated, acute, 5 mm long, 5 mm wide expanded, exceeding the pedicel and ovary; **sepals** glabrous, purple externally, greenish purple within, not widely spread, the dorsal sepal erect, ovate, obtuse, 5.5 mm long, 3.5 mm wide, 5-veined, connate 1.5 mm to the lateral sepals, the lateral sepals 4 mm long, connate 2 mm to form a shallowly concave, ovoid synsepal 4 mm wide, 8-veined, the apices acute, free for 1 mm; **petals** purple, transversely semi-

lunate, shallowly concave basally, thickened across the middle, 0.75 mm long, 1.1 mm wide, the apex broadly rounded with the margin thickened and flat; **lip** purple, ovoid-triangular, 0.8 mm long, 0.8 mm wide, 0.6 mm deep, narrowly oblong and concave anteriorly with the apex rounded, thickened across the middle with a small glenion, the dorsum filled with a low, rounded callus, the base truncate, hinged to the base of the column; **column** stout, 0.75 mm long, 0.75 mm wide, the foot obsolescent, the anther and the bilobed stigma apical.

ECUADOR: **Cotopaxi**: cloud forest between Angamarca and El Corazón, alt. 1500 m, 17 Feb. 1979, *C. Luer, J. Luer & A. Hirtz 4004* (Holotype of *S. pristis*: SEL).

This species is apparently rare and endemic in westcentral Ecuador. It is distinguished by the elliptical, petiolate leaf, and a twice longer raceme of flowers that are borne in two ranks and facing the same side, reminiscent of many species of *Lepanthopsis* (Cogn.) Ames. The tall, dorsal sepals point outward on both sides of the raceme suggesting the blade of a sawfish. The base of the dorsal sepal is incorporated into the shallow cavity of the synsepal. The petals are semilunate, and the lip is more or less triangular with an oblong, concave anterior surface surface.

334. **Stelis pugiunculi** Lindl., Folia Orchid. *Stelis* 17(125), 1858.

Ety.: From the Latin *pugiunculi*, "little daggers," probably referring to the leaves, but also possibly referring to the lip,

Syn.: *Stelis pterostylis* Schltr., Repert. Spec. Nov. Regni Veg. 14: 123, 1915.
Ety.: From the Greek *pterostylis*, "winged style," referring to the column that Schlechter saw as winged-dilated toward the apex, which I fail to see.

Plant medium in size, epiphytic, scandent; roots slender. Ramicauls ascending, slender, prolific, 5-15 cm long below to 3 cm long above, enclosed by a thin, tubular sheath near the middle and another sheath at the base. **Leaf** erect, coriaceous, narrowly linear-elliptical, acute, petiolate, 5-9 cm long including the petiole 1-1.5 cm long, 0.5-0.9 cm wide, narrowly cuneate below into the petiole. **Inflorescence** an erect, distichous, densely, many-flowered raceme with many flowers open simultaneously, 8-10 cm long including the peduncle less than 1 cm long, from an annulus below the apex of the ramicaul; floral bracts infundibular, 1.5 mm long; pedicels 1 mm long; ovary 1.5 mm long; **sepals** purple or mixed purple and yellow, glabrous, the dorsal sepal erect, ovate, obtuse, slightly convex, 3-3.5 mm long, 2-2.5 mm wide, 3-veined, connate basally to the synsepal, the lateral sepals connate into a broadly ovate, deeply concave, inflated synsepal, 2-2.5 mm long, 3-3.5 mm wide expanded, 6-veined; **petals** yellow to purple, subcircular, with a short apiculum, 1 mm long, 1.5 mm wide, abruptly concave at the base below a markedly broad margin; **lip** yellow to purple, subquadrate, with an acute, triangular apiculatum, 0.5 mm long without the apiculum, 0.8 mm wide, 0.5 mm deep, the apex abruptly contracted into the narrowly acute apiculum ca. 0.5 mm long, the disc broad, shallowly concave, the base truncate, hinged to the base of the column; **column** stout, 0.75 mm long, 0.75 mm wide, the foot obsolescent, the anther and the stigma apical, the stigma bilobed.

ECUADOR: **Pichincha**: without locality, *W. Jameson s.n.* (Holotype of *S. pugiunculi*: K); Mt. Corazon toward Atacazo, Aug. 1875, *A. Sodiro 17* (holotype of *Stelis pterostylis* destroyed at B; lectotype here designated: BR); farm road south of Tandapi, alt. 1600 m, 1 Mar. 1986, *C. Luer, C.H. Dodson, A. Hirtz & A. Embree 12065* (MO); above Tandapi, alt. 2000 m, 8 Jan. 1986, *C. Dodson & P. Dodson 16293* (MO).
Carchi: between Maldonado and Chical, alt. 1500 m, 15 Jan. 1992, *C. Luer, J. Luer. A. & P. Jesup 16024* (MO); Cerro Golondrinas, alt. 1750 m, 6 Feb. 1993, *B. Boyle & A. Boyle 1487* (MO).

"Little Daggers," related to other species with a subulate process of the lip, occurs sympatrically in the wet forests of northern Ecuador. Vegetatively, it is long-scandent with a narrowly elliptical leaf at intervals and an equally long, crowded raceme. The synsepal is deeply inflated. The proportionately large petals are broadly rounded, most of the surface being an extremely wide margin, and at the middle of the edge there is a minute, triangular process. The body of the minute lip is more or less transverse with the apex narrowly triangular and acute.

29., **29a**, *105.*, **Stelis purpurea** (Ruiz & Pav.) Willd., Sp. Pl. 4: 140, 1805.

Bas.: *Humboltia purpurea* Ruiz & Pav., Fl. Peruv. Chil. Prodr. 121, t. 27, 1794, nom. rej., not *Humboltia purpurea* Vahl, 1794,

Syn.: *Humboldtia purpurea* Ruiz & Pav., Syst. Veg. Fl. Peruv. Chil. 235, 1798.
Ety.: From the Latin *purpureus*, "purple," referring to the color of the flowers.

Syn.: *Humboldtia spiralis* Ruiz & Pav., Syst. Veg. Fl. Peruv. Chil, 237, 1798.
Ety.: From the Latin *Spiralis*, "spiraled, twisted," alluding to the flowers on the raceme.

Syn. *Pleurothallis spiralis* (Ruiz & Pav.) Lindl., Gen. Sp. Orchid. Pl. 7, 1830.

Syn.: *Stelis connata* C.Presl, Rel. Haenk. 1: 103, 1827.
Ety.: From the Latin *connatus*, "connate," referring to the lateral sepals.

Syn.: *Stelis cupuligera* Rchb.f. & Warsz., Bonplandia 2: 114, 1854.
Ety.: From the Latin *cupuliger*, "cup bearing," referring to the bilabiate flowers.

Syn.: *Stelis dubia* Lindl., Folia Orchid. *Stelis* 8(55), 1858.
Ety.: From the Latin *dubius*, "doubtful," because of a mistaken similarity to *S. nanegalensis*.

Syn.: *Stelis acutissima* Lindl., Folia Orchid. *Stelis* 14(108), 1858.
Ety.: From the Latin *acutissimus*, "very acute," referring to the floral bracts.

Syn.: *Stelis densiflora* Lindl., Folia Orchid. *Stelis* 16(118), 1858.
Ety.: From the Latin *densiflorus*, "densely flowered," referring to the raceme.

Syn.: *Stelis endocharis* Rchb.f., Linnaea 41: 8, 1877.
Ety.: From the Greek *endocharis*, "pretty inside," referring to the flowers.

Syn.: *Stelis abrupta* Rchb.f., Linnaea 41: 7, 1877.
Ety.: From the Latin *abruptus*, "terminated abruptly," referring to the truncate lip.

Syn.: *Stelis hemicardia* Rchb.f., Linnaea 41: 8, 1877.
Ety.: From the Greek *hemicardia*, "half-a-heart," referring to the bilabiate flowers.

Syn.: *Stelis rusbyi* Rolfe, Mem. Torrey Bot. Club. 4: 261, 1895.
Ety.: Named for Henry Hurd Rusby, American medical botanist, who collected this species.

Syn.: *Stelis huancabambae* Kraenzl., Bot. Jahrb. Syst. 54, Beibl. 117: 20, 1916.
Ety.: Named for the community of Huancabamba, near where the species was collected.

Syn.: *Stelis pachyphylla* Schltr., Repert. Spec. Nov. Regni Veg. Beih. 7: 91, 1920.
Ety.: From the Greek *pachyphyllon*, "thick-leaf," referring to the foliage.

Syn.: *Stelis pachystele* Schltr., Repert. Spec. Nov. Regni Veg. Beih. 7: 92, 1920.
Ety.: From the Greek *pachystele*, "thick column," referring to the column.

Syn.: *Stelis phaeantha* Schltr., Repert. Spec. Nov. Regni Veg. Beih. 9: 68, 1921.
Ety.: From the Greek *phaeanthos*, "darkly colored flower," referring to the flowers.

Syn.: *Stelis robusta* Schltr., Repert. Spec. Nov. Regni Veg. Beih. 27: 38, 1924, not 1918.
Ety.: From the Latin *robustus*, "robust," referring to the habit.
Syn.: *Stelis robustior* Garay, Bot. Mus. Leafl. Harvard Univ. 27(7-9): 185, 1980, replaced name for *S. robusta* Schltr., 1924.

Syn.: *Stelis yungasensis* Schltr., Repert. Spec. Nov. Regni Veg. 27: 49, 1929.
Ety.: Named for the Yungas of Bolivia where the species was collected.

Syn.: *Stelis asseris* O.Duque, Orquideología 20(3): 329, 1997.
Ety.: From the Latin *asser*, "a stake, a pole," referring to the bar of the lip.

Syn.: *Stelis dentata* O.Duque, Orquideología 20(3): 339, 1997.
Ety.: From the Latin *dentatus*, "dentate," referring to toothlike appearances on the lip.

Syn.: *Stelis repanda* Luer & Hirtz, Monogr. Syst. Bot. Missouri Bot. Gard. 88: 22, 2002.
Ety.: From the Latin *repandus*, "repand," referring to the wavy margins of the floral bracts.

Syn.: *Stelis alpina* Luer & Hirtz, Monogr. Syst. Bot. Missouri Bot. Gard. 95: 121, 2004.
Ety.: From the Latin *alpinus*, "of a high altitude," referring to the habitat.

Plant medium to large in size, epiphytic, densely caespitose to shortly repent; roots slender. Ramicauls stout, erect, up to 40 cm long, enclosed by a loose, tubular sheath near the middle and 2-3 other sheaths at the base. **Leaf** erect, coriaceous, elliptical, petiolate, with the apex subacute to obtuse, 6-17 cm long including the petiole 0.5-2.5 cm long, 1-5 cm wide, cuneate below into the petiole. **Inflorescence** 1-2 erect, distichous, subdensely many-flowered racemes with many flowers open simultaneously, 18-35 cm long including the peduncle 5-13 cm long, subtended by a spathe 1-2 cm long, from an annulus

below the apex of the ramicaul; floral bracts infundibular, oblique, acute, from 12 mm long below to 5 mm long above; pedicels 3-6 mm long; ovary 2-3 mm long; flowers nutant, bilabiate, purple, yellow, yellow-green, or purple with yellow petals and lip; **sepals** glabrous externally, microscopically pubescent within, more or less variously suffused with shades of purple, the dorsal sepal erect, ovate-triangular, 10 mm long, 5-6 mm wide, 5-(7-)veined, connate to the synsepal for 1 mm, the lateral sepals connate into a broadly ovate, concave synsepal, 5-6.5 mm long, 5-7 mm wide unexpanded, 6-(8-)veined; **petals** purple, transversely semilunate, 1-1.25 mm long, 2-2.25 mm wide, concave below the broadly rounded apex with the margin thickened and flattened, the base transversely truncate; **lip** purple, thick, subquadrate, 0.9-1.2 mm long, 1.2-1.5 mm wide, 0.9-1 mm deep, the apex thick, broadly rounded, shallowly concave anteriorly with a glenion, the dorsum with a low, more or less lobed callus, the base truncate, hinged to the base of the column; **column** stout, 1 mm long, 1.2-1.5 mm wide, the foot obsolescent, the anther and the stigma apical, the stigma bilobed.

Selected representative collections:
PERU: **Huánuco**: Muña, ca. 1779, *Ruiz & Pav., s.n.* (Holotype of *Humboldtia purpurea* Ruiz & Pav.: MA); mountains of Huánuco, *Th. Haenke s.n.* (holotype of *S. connata* C.Presl unknown; lectotype here designated: K); Huassa Huasi, on rocks, *Ruiz & Pav. s.n.* (holotype of *Humboldtia spiralis*: MA); without locality, *Warsczewicz s.n.* (holotype of *S. cupuligera*: W).
San Martín: Chachapoyas, *Mathews s.n.* (holotype of *S. densiflora*: K).
Junín: Tarma, mountains of Yanangu, east of Huacapistana, alt. 2300-2400 m, Jan. 1913, *A. Weberbauer 2128* (holotype of *S. phaeantha* destroyed at B, lectotype here designated: CUZ, lectotypes: G, MOL).
Cajamarca: Jaen, east of Huancabamba, alt. 2400-2500 m, 10 Apr. 1912, *A. Weberbauer 6112* (holotype destroyed at B, lectotype of *S. huancabambae* here designated: AMES).
BOLIVIA: **La Paz**: Yungas, 1846, *Bridges s.n.* (K); Yungas, alt. 6,000 ft., 1885, *H.H. Rusby 2758* (holotype of *S. rusbyi*: K; isotype: LE); Yungas, 1890, *M. Bang 332* (W); Nord Yungas, Polo-Polo near Coroico, alt. 1100 m, Oct.-Nov. 1911, *O. Buchtien 3699* (lectotype of *S. yungasensis*: AMES).
ECUADOR: **Carchi**: between Tulcán and Maldonado, alt. 1950 m, 2-4 Apr. 1984, *C. Luer, S. Dalström & T. Höijer 9909* (MO); west of the pass west of Tulcán, terrestrial on the road embankment, Bosco, alt. 3400 m, 16 Mar. 1991, *C. Luer, J. Luer, J. del Hierro, A. & X. Hirtz 15046* (holotype of *S. alpina* Luer & Hirtz: MO); terrestrial in scrub forest north of El Playón, alt. 3100 m, 20 Mar. 1991, *C. Luer, J. Luer & A. Hirtz 15184, 15187, 15188* (MO); east of Gruta La Paz, alt. 3200 m, 13 Sept. 2004, *A. Hirtz et al. 9014* (MO), C. Luer illustr. 21038.
Sucumbíos: south of Santa Barbara, alt. 2700 m, 5 Apr. 1984, *C. Luer, S. Dalström & T. Höijer 9967* (MO); same area, alt. 2700 m, 6 Apr. 1985, *C. Luer, J. Luer, A. Hirtz & W. Flores 11091A* (MO).
Imbabura: east of Cayambe, alt. 10,300 ft., 29 July 1944, *I. Wiggins 10509* (AMES).
Pichincha: western side of Pichincha, Oct. 1855, *W. Jameson s.n.* (holotype of *S. acutissima*: K); Andes Quitenses, 1859, *Spruce 5383* (K); western declivity of the Andes, 1854, *W. Jameson s.n.* (holotype of *S. dubia*: K).
Napo: Río Azuela between Baeza and Lago Agrio, alt. 1740 m, 24 Oct. 1971, *B. MacBryde 821* (AMES); new road east of Salcedo, Río Anatenario, alt. 2800 m, 27 May 1979, *B. Løjtnant, A. & U. Molau 13816, 13820* (AAU); Cosanga near Tena, alt. 1850 m, 17 June 1983, *C.H. Dodson, D. Benzing & A. Hirtz 14027* (SEL); Cerro Sumaco, alt. 3000 m, 1 May 1979, *B. Løjtnant & U. Molau 13034* (AAU, GB).
Tungurahua: Cordillera de Llanganates, near junction of Río Golpe and Río Sangarinas, alt. unknown, 25 Nov. 1939, *E. Asplund 9864* (AMES, S); slopes of Vulcán Tungurahua, alt. 2400 m, Dec. 1983, *A. Hirtz 1475* (MO); Cordillera de Llanganates, near junction of Río Golpe and Río Sangarinas, alt. unknown, 25 Nov. 1939, *E. Asplund 9864* (AMES, S).
Bolívar: between Guaranda and Balzapamba, alt. 2000 m, 26 Mar. 1984, *C. Luer, S. Dalström, A. Hirtz at al. 9733* (MO); west of Guaranda, old road to Puertoviejo, alt. 3100 m, 26 Mar. 1984, *C. Luer, S. Dalström, A. Hirtz et al. 9740* (MO).
Morona-Santiago: between Gualaceo and Limón, alt 2900-3100 m, 12 June 1979, *B. Løjtnant, A. & U. Molau 14684* (AAU, GB); east of the pass between Gualaceo and Limón, alt. 3180 m, 16 Feb. 1986, *C. Luer, J. Luer, A. Hirtz, W. Flores & A. Embree 11811, 11837* (MO); southeast of Sigsig, alt. 3050 m, 13 Jan. 1989, *C. Luer, J. Luer, A. Hirtz, A. & P. Jesup 13863* (MO).
Cañar: at pass between Azogues and Taday, alt. 3100 m, 30 Mar. 1985, *G. Harling & L. Andersson .lh6 23446* (AMES, GB, QCA).
Loja: Cordillera de Sabanilla, south of Yangana, alt. 2480 m, 31 Dec. 1980, *M.T. Madison et al. 7477* (SEL); new road north of Loja, alt. 2600 m, 2 Feb. 1987, *C. Luer, J. Luer & A. Hirtz 12579* (MO).
Azuay: above Cumbe, alt. 2800 m, 6 Mar. 2001, *C. Luer, J. Luer, A. Hirtz, E. Sánchez & L. Suin 19757* (MO).
Zamora-Chinchipe: south of the pass above Yangana, alt. 2450 m, 23 Mar. 1985, *C. Luer, J. Luer, A. Hirtz & W. Flores 10857* (MO); east of the pass east of Loja, alt. 2150 m, 26 Mar. 1985, *C. Luer, J. Luer, A. Hirtz & W. Flores 10933* (holotype of *S. repanda*: MO); south of Zamora toward Zumba, alt. 1450 m, 27 Mar. 1985, *C. Luer. J. Luer, A, Hirtz & W. Flores 10959* (MO); Cordillera del Condor, east of Los Encuentros, 22 Jan. 1989, *C. Luer, J. Luer, A. Jesup & P. Jesup 14052* (MO).

COLOMBIA: **Antioquia**: Medellín, *Roezl s.n.* (holotype of *P. hemicardia*: W); without data, *Roezl s.n.* (holotype of *S. endocharis*: W); Medellín, *Roezl s.n.* (holotype of *S. abrupta*: W, drawing at AMES).
Quindio: at the pass between Salento and Tocha, alt. 3300 m, 10 May 1993, *C. Luer et al. 15643* (MO).
Cauca: west Andes of Cali, alt. 1600-2000 m, *F.C. Lehmann 6922* (holotype of *S. pachystele*: destroyed at B, lectotype here designated AMES; lectotype: K); *F.C. Lehmann 6922* (LE) is not an isotype; near Sonsón, alt. 2300 m, collected by N. Peláez, flowered in cultivation 27 Dec. 1991, *O. Duque 1400* (holotype of *S. asseris*: JAUM); beside Río Buey, between La Ceja and Abejorral, alt. 1800 m, 4 Feb, 1991, flowered in cultivation Mar. 1991, *O. Duque 1280* (holotype of *S. dentata*: JAUM).
Valle del Cauca: Tocota near Cali, alt. 6,000 ft., Nov. 1877, *F.C. Lehmann 132* (W).
Nariño: Volcán Puracé, Río Palace, alt. 10,000 ft., 20 May, 1878 *F.C. Lehmann s.n.* (W); Pasto, Altaquer, alt. 1200 m, 6 Aug. 1879, *F.C. Lehmann 148* (W); Pasto, Altaquer, alt. 1200 m, 6 Aug. 1879, *F.C. Lehmann 148* (W); La Laguna, alt. 3000 m, 21 Feb. 1881, *F.C. Lehmann 364* (W); southeastern slope of Volcán Pasto, alt. 3000 m, 14 Feb. 1880, *F.C. Lehmann 535* (W); between Pasto and Mocoa, alt. 3300 m, May 1921, *W. Hopp 56* (holotype of *S. robusta* destroyed at B, neotype here designated: *C. Luer & J. Luer 12537* (MO).
Putumayo: between La Cocha and Sibundoy, alt. 3000 m, 26 Jan. 1987, *C. Luer & J. Luer 12537* (MO). Without data, collected by *Madero s.n.* (holotype of *S. pachyphylla* destroyed at B, neotype here designated: *C. Luer et al. 15643* (MO).

This species is frequent with innumerable, trivial variations in size and shape of the leaf and flowers in its wide distribution in the Andes. Apparently because he had no access to an authentic specimen of *Stelis purpurea* (Ruiz & Pav.) Willd., Lindley described two specimens of this species as *S. acutissima* and *S. dubia*. No specimen in his herbarium was identified by him as *S. purpurea*.

Two recent collections of variations of this species have been described and illustrated in *Icones Pleurothallidinarum*. *Stelis repanda* Luer & Hirtz, *Icones Pleuroth.* 24, Part One, Fig. 29., was distinguished by longer, undulating floral bracts. *Stelis alpina* Luer & Hirtz, *Icones Pleuroth.* 26, Part Two, Fig. 105., was distinguished by larger flowers with sepals more than ten millimeters long.

Stelis purpurea is usually a robust plant characterized by a very shortly repent to a densely caespitose habit with many-flowered racemes that usually far exceed the elliptical, petiolate leaves. The floral bracts are lomg and more or less inflated. The flowers are variable in size, some large specimens equalling those of *Stelis maxima* Lindl. The color varies among all shades of purple to yellow. The five- (occasionally seven-) veined dorsal sepal is ovate-triangular, more or less acute, and usually more than six millimeters long, and the lateral sepals are connate into a concave synsepal. The dorsal sepal of *S. repanda* was illustrated with three veins, which, after reviewing the flowers of the type collection, is found to be an omission of the outer veins. The petals are proportionately large with broadly rounded, thick margins. The apex of the type-A lip is also rounded and thick, and on the dorsum a low, rounded callus, sometimes lobulated, fits beneath the column.

335. **Stelis scopulosa** Luer & Hirtz, sp. nov.

Ety.: From the Latin *scopulosus*, "full of little brushes," referring to the little, bristly flowers.

Species haec *Stelidis nutanti* Lindl. similis, sed sepalis dense pubescentibus, petalis obtusiangulatis, et labelli apici prominenti obtuso differt.

Plant medium to large in size, epiphytic, densely ascending-caespitose; roots slender. Ramicauls erect, slender, 10-18 cm long, enclosed by a tubular sheath near the middle and another from below the middle, and 1-2 imbricating sheaths at the base. **Leaf** erect, coriaceous, narrowly elliptical, acute, 9-11 cm long including a petiole 1.5-2 cm long, 1.2-1.6 cm wide, cuneate below into the petiole. **Inflorescence** 1-3 strict, erect, congested, secund, many-flowered racemes with many flowers open simultaneously, 15-20 cm long including the peduncle 2-4 cm long, subtended by a spathe 1-1.8 cm long, at an annulus below the apex of the ramicaul; floral bracts oblique, acute, 2-2.5 mm long; pedicels 1 mm long; ovary 1 mm long; **sepals** yellowish to greenish white with a dense, white pubescence; glabrous externally, the dorsal sepal ovate, convex, with the obtuse apex more or less recurved, connate to the synsepal for ca. 0.5 mm, 3.5-4.5 mm long, 2-2.3 mm wide, 3-veined, the lateral sepals connate basally but connivent

into a concave, broadly ovoid synsepal, 2.3-3 mm long, each 2.3-3 mm long, 3-veined; **petals** transversely ovate, 0.5-0.75 mm long, 1 mm wide, 3-veined, concave below the broadly obtuse apical margin; **lip** thickly subtriangular, 0.8 mm long, 0.5 mm wide, 0.4 mm deep, shallowly concave anteriorly with the apex narrowed but obtuse, the bar protuberant with a concave glenion, the dorsum with a broad, low, pubescent callus, the base broadly truncate, hinged to the base of the column; **column** stout, 0.5 mm long, 0.5 mm wide, the foot obsolescent, the anther and the bilobed stigma apical.

ECUADOR: **Bolívar**: terrestrial on the road embankment west of Guaranda toward Catarama, alt. 2700 m, 13 Mar. 1991, *C. Luer, J. Luer, A. Hirtz 15032* (Holotype of *S. scopulosa*: MO).
Cotopaxi: between Angamarca and Corazón, alt. 1200 m, 17 Feb. 1979, *C. Luer, J. Luer & A. Hirtz 4011* (SEL).

This species is apparently uncommon and restricted to the western slope of the high Andes of central Ecuador. It is similar to *Stelis nutans* Lindl., but differs in the more slender habit; sepals densely long-pubescent within; petals with an obtuse margin; and a thick triangular lip with the apex narrowed and obtuse. The bar is protuberant and incised with a deep glenion.

336. **Stelis singularis** Luer & Hirtz, sp. nov.

Ety.: From the Latin *singularis*, "alone," the rare member of section *Humboldtia* to have petals with only one vein.

Inter species sectionis *Humboldtiae* habitus grandis folio anguste ovato ramicauli leviter longiore et racemo plus minusve aequilongo, floribus mediocribus synsepalo anguste obtuso, petalis vulgo uninervibus et labello lato non alto ad dorsum calloso distinguitur.

Plant large, epiphytic, caespitose; roots slender. Ramicauls erect, 6-10 cm long, enclosed by a tubular sheath above the middle, and another 1-2 sheaths at the base. **Leaf** erect, coriaceous, narrowly ovate, acute, petiolate, 14-15 cm long including a petiole 2.5-3 cm long, the blade 2.5 cm wide, cuneate below into the petiole. **Inflorescence** 1-2 erect, subcongested, distichous, many-flowered racemes, many flowers open simultaneously, 14 cm long, flowering from near the base, with a spathe 1.2 cm long, from an annulus below the apex of the ramicaul; floral bracts oblique, 3-4 mm long; pedicels 3 mm long; ovary 1.5 mm long; **sepals** glabrous, the dorsal sepal purple, ovate, acute, 6 mm long, 3.75 mm wide, incompletely 7-veined, connate basally to the synsepal for 1 mm, the lateral sepals connate into an ovoid, concave synsepal, 5.5 mm long, 4.5 mm wide unexpanded, 6-veined, rounded at the base; **petals** purple, thin, transversely ovate, 0.8 mm long, 1.3 mm wide, usually 1-veined, occasionally 2-veined, the apex broadly rounded with a narrow, thickened margin, concave basally below an ill-defined transverse callus; **lip** transversely subquadrate, 0.6 mm long, 1.8 mm wide, 0.4 mm deep, concave anteriorly within the thick margin of the broadly rounded apex, with the lateral angles expanded apex, the bar with a glenion, the dorsum with a large, rounded callus and a smaller, low callus on either side, the base truncate, hinged to the base of the column; **column** stout, 0.6 mm long, 0.8 mm wide, the foot obsolescent, the anther and the bilobed stigma apical.

ECUADOR: **Carchi**: Río Blanco, along new road between Carolina and Chical, alt. 1800 m, 10 Apr. 2007, *A. Hirtz, L. Grobler et al. 9222* (Holotype of *S. singularis*: MO), C. Luer illustr. 21265.

This relatively large species is characterized by a narrowly ovate leaf that is slightly longer than the ramicaul, and the many-flowered raceme is about as long as the leaf. The dorsal sepal is acute and the synsepal is rounded at the base with the apex narrowly obtuse. The petals are thin, usually with only one distinct vein. Occasionally the mate will have an additional vein. Among the petals of the flowers of the raceme examined, only three or four petals with two veins were seen. The lip is type-A, broader than long and shallow in depth with a round callus on the dorsum that slopes downward.

A single-veined petal is rare in *Stelis* section *Humboldtia*, known previously only in tiny *Stelis glossula* Rchb.f.

337. **Stelis stiriosa** Luer & Dalström, sp. nov.

Ety.: From the Latin *stiria*, "an icicle," referring to the hanging raceme of white flowers.

Species haec *Stelidis piperinae* Lindl. affinis, sed foliis ovatis acutis majoribus, sepalo dorsali linear-oblongo, et sepalis lateralibus late falcatis differt.

Plant medium in size, epiphytic, long-repent, branching, up to 30 cm long, rhizome stout, 2-3 cm long between ramicauls; roots slender. Ramicauls ascending, 1.5-2 cm long, enclosed by 2 ribbed, tubular sheaths without the margins minutely ciliate-papular. **Leaf** suberect or subpendent, coriaceous, ovate, acute, 3-5 cm long including the petiole 0.5 cm long, 1-1.5 cm wide, cuneate below into the petiole. **Inflorescence** a pendent, sublax, distichous, simultaneously several-flowered raceme, 6-10 cm long including the peduncle 3-4 cm long, from near the apex of the ramicaul; floral bracts broadly infundibular, acute, 3-4 mm long, engulfing pedicel, ovary and lower portion of the sepals; pedicels 0.5 mm long; ovary 0.8 mm long; **sepals** glabrous, white, the dorsal sepal suffused with light rose, antrorse, linear-oblong, obtuse, 6 mm long, 1.3 mm wide, 3-veined, thickened toward the apex, barely connate to the synsepal, the lateral sepals white, connate 1 mm and connivent into a broadly ovoid, deeply concave synsepal, each sepal subfalcate, acute, 4.5 mm long, 2.5 mm wide, 3-veined; **petals** white, transversely flabellate, 0.6 mm long, 0.8 mm wide, 3-veined, the apex broadly obtuse with the margin thickened; **lip** trilobed, 0.75 mm long, 0.6 mm wide, 0.3 mm deep, with the apex triangular, acute, the blade transversely subquadrate, with obtuse, antrorse lateral lobes, the disc shallowly channeled between the origins of the lateral lobes, the base truncate, hinged to the base of the column; **column** stout, 0.5 mm long, 0.6 mm wide, the foot obsolescent, the anther and the stigma apical, the stigma bilobed.

ECUADOR: **Imbabura**: Reserva Biológica Los Cedros, along ridge above Joe's house, alt. 1700 m, 24 Jan. 1993, *S. Dalström, T. Höijer & H. Wanntorp 1752* (Holotype of *S. stiriosa*: MO), C. Luer illustr. 21248; along southern ridge, alt. 1500 m, 25 Mar. 1996, *S. Dalström, S. Ingram & K. Ferrell-Ingram 2222* (MO); camino hacia el observatorio, alt. 1800 m, 3 Mar. 2002, *L. Endara A. 898* (QCA).

This species is related to *Stelis piperina* Lindl., but differs having larger, ovate, acute leaves, and sheaths of the rhizome not minutely ciliate-papillose along the margins. A pendent, several-flowered raceme in two opposite ranks exceeds the leaf. The floral bracts are dilated and surround the base of the flowers. The dorsal sepal is antrorse and narrowly oblong, the nearly as large, lateral sepals are connivent into a concave synsepal. The petals are transversely flabellate. The minute lip has similar wing-like lobes. but the protruding middle lobe is not as slender.

338. **Stelis tobarii** Luer & Hirtz, sp. nov.

Ety.: Named for Francisco Tobar of Mindo, Ecuador, collector of this species.

Inter species sect. *Humboldtiae* planta grandis caespitosa, racemo multifloro folio ovato longissime petiolato plus minusve aequilongo, sepalis glabris multivenosis, petalis transversis marginibus crassissimis, et labello ille *Stelidis flaccae* Rchb.f. similis.

Plant large, epiphytic, caespitose; roots slender. Ramicauls erect, slender 23-30 cm long, with a long, tubular sheath near the middle, and 2-3 imbricating sheaths toward the base. **Leaf** erect, coriaceous, ovate, acute, long-petiolate, the blade 10-12 cm long, 4.5-5 cm wide, abruptly contracted into a slender petiole 3.5 cm long. **Inflorescence** 1-2 erect, sublax, successively many-flowered racemes with several flowers open simultaneously, to 17 cm long including the peduncle ca. 5 cm long, subtended by a spathe ca. 1 cm long, from an annulus below the apex of the ramicaul; floral bracts infundibular, oblique, obtuse, 2.5-3 mm long; pedicels 2-2.5 mm long; ovary 3 mm long; flowers red-purple; **sepals** glabrous, the dorsal sepal erect, ovate, acute, 7 mm long, 4.5 mm wide, incompletely 7-veined, connate basally to the synsepal, the lateral sepals connate into a broadly ovate, bifid, concave synsepal, 5.5 mm long, 5.5 mm wide, 10-veined; **petals** thick, transversely lunate, 1.3 mm long, 1.8 mm wide, the apex round and markedly thickened, concave basally below a transverse callus; **lip** thick, subquadrate, 1 mm long, 1.3 mm wide, 0.5 mm deep, the apex broadly rounded with a wide margin, shallowly concave above, the bar tall with a shallow glenion, the posterior surface (the "dorsum" in apposition with the inferior surface of the column) featureless, the base truncate, hinged to the base of the column; **column** semiterete, 1 mm long, 1.3 mm wide, the foot obsolescent, the anther and the stigma apical, the stigma bilobed.

Imbabura: Cotacachi, Junín, alt. 1500-1700 m, 16 Feb. 2004, *F. Tobar & J. Monge 810* (Holotype of *S. tobari*: MO), C. Luer illustr. 20891.

This large species, known from only the original collection, is related to *Stelis flacca* Rchb.f. with which it grows sympatrically in the province of Imbabura. It is characterized by a large size, long ramicauls, and a very long-petiolate leaf that is eventually surpassed by a sublax raceme of flowers described as being wine colored. The sepals are glabrous and multiveined; the petals have a thick, rounded margin; and the shallow lip fits obliquely along the under surface of the column, similar to that of *S. flacca*.

339. **Stelis truncata** Lindl., Comp. Bot. Mag. 2: 353, 1836.

Ety.: From the Latin *truncatus*, "truncate," referring to the labellum.

Syn.: *Stelis fruticulus* Schltr., Repert. Spec. Nov. Regni Veg. Beih. 7: 88, 1920.
Ety.: From the Latin *fruticulus*, "a little shrub," referring to the habit.

Syn.: *Stelis cordibractea* Schltr., Repert. Spec. Nov. Regni Veg. Beih. 8: 51, 1921.
Ety.: From the Latin *cordibracteus*, "with cordate bracts," referring to the bracts.

Plant large, epiphytic, caespitose basally, long-scandent above; roots slender. Ramicauls erect, stout, prolific, 4-15 cm long, enclosed by 2 close, tubular sheaths. **Leaf** erect, coriaceous, elliptical, acute to sub acute, 4-10 cm long, 1-2.5 cm wide, narrowly cuneate below into a petiole ca. 1 cm lomg. **Inflorescence** an erect, subcongested, distichous, simultaneously many-flowered raceme, 8-18 cm long including the peduncle 1-6 cm long, from an annulus below the apex of the ramicaul; floral bracts acute, oblique, undulating, 5-8 mm long; pedicels 2-3 mm long; ovary 2 mm long; flowers nutant, yellow-green, orange, to purple, variously suffused; **sepals** glabrous, the dorsal sepal erect, triangular, acute, 5-8 mm long, 5-6 mm wide, 5-(7-)veined, connate to the synsepal for 2 mm, the lateral sepals connate into a transversely ovate, concave synsepal, 3.5-7 mm long, 5-9 mm wide expanded, 6-(8-)veined; **petals** transversely semilunate, 1-2 mm long, 1.5-2.75 mm wide, concave below the broadly rounded apex with the margin thickened and flattened, with a transverse callus above the concave base; **lip** thick, subquadrate, 1-1.5 mm long, 1.25-2 mm wide, 0.75-1.5 mm deep, the apex thick, broadly rounded, shallowly concave anteriorly with a glenion, the dorsum with a low, more or less three-lobed callus, the base truncate, hinged to the base of the column; **column** stout, 1.5 mm long, 2.2 mm wide, the foot obsolescent, the anther and the stigma apical, the stigma bilobed.

PERU: **San Martin**: Chachapoyas, *Mathews s.n.* (Holotype of *S. truncata*: K).
ECUADOR: **Carchi**: between Tulcán and Maldonado, alt. 2600 m, 21 May 1973. *Holm-Nielsen et al. 6224* (AAU, AMES); west of Tulcán, alt. ca, 2500 m, 25 Aug. 1978, *C. Luer, J. Luer & A. Hirtz 3352* (SEL); terrestrial, between Tulcán and Maldonado, alt. 3400 m, 16 Mar. 1991, *C. Luer, J. Luer, J. del Hierro, A. & X. Hirtz 15047* (MO); same area, alt. 3250 m, 14 Jan. 1992, *C. Luer, J. Luer, A. & P. Jesup 16000, 16005, 16014* (MO); east of pass above Maldonado, alt. 2450, 15 Jan. 1992, *C. Luer, J. Luer, A. & P. Jesup 16032* (MO).
Chimborazo: west slopes of Volcán Chimborazo, alt. 3000-3500 m, *F.C. Lehmann 8218* (holotype of *S. cordibractea* destroyed at B, lectotype here designated: K; lectotype: AMES); Chontapamba, between Puela and Baños, 15 Mar. 1969, *H. Lugo 768* (GB).
Azuay: Río Cumbe valley. south of Cumbe. alt. 2900-3000 m, 9 June 1975, *B. Løjtnant, A. & U. Molau, 14369* (AAY, GB).
Loja: south of Loja, alt. 2400-2500 m, 18 Apr. 1946, *B. Espinosa 189* (AMES, LOJA); forest at the pass north of Loja, alt. 3150 m, 17 Jan. 1985, *C. Luer, S. Dalström, T. Höijer & J. Kuijt 9548* (MO).
Zamora-Chinchipe: Nudo de Sabanilla, road to Valladolid, alt. 2800 m, 4 Feb. 1985, *B. Harling & L. Andersson 21522* (GB); south of Yangana above Valladolid, alt. 2700 m, 23 Mar. 1985, *C. Luer, J. Luer, A. Hirtz & W. Flores 10822* (MO).
COLOMBIA: **Antioquia**: Alto de Aleman (Alegrias), west Andes of Antioquia, alt. 2500 m, Oct., *F.C. Lehmann 8214* (holotype of *S. fruticulus*: destroyed at B; lectotype here designated: AMES; lectotype: LE).

This species is obviously related to the common and variable *Stelis purpurea* (Ruiz & Pav.) Willd., but it is easily distinguished from the latter. The plant is scandent with stout or slender, superposed ramicauls with elliptical leaves, that are usually much smaller than those of the latter. The flowers are similar, easily falling within the variations found in *S. purpurea*.

340. **Stelis valladolidensis** Luer & D'Alessandro, sp. nov.

Ety.: Named for Río Valladolid, along which the species was collected.

Species haec *Stelidis nutanti* Lindl. affinis, sed habitu minore racemi folio anguste oblongo plus minusve breviore, sepalis lateralibus falcato-ovatis subacutis, labelli apice triangulari profunde concavo distinguitur.

Plant small to medium in size, epiphytic, caespitose; roots slender. Ramicauls erect, slender, 3-7 cm long, enclosed by a tubular sheath from below the middle and 2-3 sheaths at the base. **Leaf** erect, coriaceous, narrowly elliptical-oblong, acute, 9-11 cm long including an indistinct petiole 1.5 cm long, 1.5-1.7 cm wide, narrowly cuneate below into the petiole. **Inflorescence** an erect, congested, distichous, nearly simultaneously many-flowered raceme, 7-10 cm long including the peduncle 1-2 cm long, with a

spathe 8-10 mm long, at the apex of the ramicaul; floral bracts infundibular, oblique, acute, 3 mm long; pedicels 1 mm long; ovary 1 mm long; **sepals** yellow-green, suffused with purple toward the base, glabrous, the dorsal sepal fleshy, free except near the base, erect, oblong, subacute, 3.5 mm long, 1.5 mm wide, 3-veined, the lateral sepals antrorse, falcate-ovate, oblique, subacute, 3 mm long, 2 mm wide, 3-veined, connate ca. 1 mm; **petals** transversely ovate, 0.8 mm long, 1.2 mm wide, 3-veined, concave below the broadly rounded apex with a thick, flat margin, without a transverse callus; **lip** thick, subquadrate, 0.75 mm long, 0.8 mm wide, 0.6 mm deep, the apex narrowly triangular, acute, protuberant, deeply concave below a prominent transverse bar, the glenion replaced by a deep cavity, the dorsum with a low, trilobed central callus, the base truncate, hinged to the base of the column; **column** stout, 0.75 mm long, 0.75 mm wide, the foot obsolescent, the anther and the bilobed stigma apical.

ECUADOR: **Zamora-Chinchipe**: along Río Vallodolid above Valladolid, alt. 1700-1800 m, 16 Apr. 1986, *D. D'Alessandro 603* (Holotype of *S. valladolidensis*: MO), C. Luer illustr. 21249.

This species, known from only the original collection, is similar to the common and variable *Stelis nutans* Lindl., but it is distinguished from the latter by a crowded raceme of small flowers that is slightly shorter than the narrowly oblong leaves. The erect dorsal sepal is oblong; the antrorse lateral sepals are falcate-ovate; the petals are transversely ovate without a transverse callus; and the apex of the lip triangular and deeply concave below a transverse bar.

341. **Stelis velutina** Lindl., Folia Orchid. *Stelis* 17(130), 1858.

Ety.: From the Latin *velutinus*, "velvety," referring to the short pubescence of the sepals.

Syn.: *Stelis hians* Schltr., Repert. Spec. Nov. Regni Veg. 14: 121, 1915.
Ety.: From the Latin *hians*, "gaping," referring to the bilabiate flowers.

Plant medium to large, epiphytic, caespitose; roots slender. Ramicauls erect, stout, 3-6 cm long, enclosed by 2-3 loose, imbricating sheaths. **Leaf** erect, coriaceous, elliptical, subacute to obtuse, 6-11 cm long including a petiole ca. 1 cm long, 2-3 cm wide, cuneate below into the petiole. **Inflorescence** a strict, erect, congested, secund, many-flowered raceme with many flowers open simultaneously, 15-23 cm long including the peduncle 6-10 cm long, subtended by a spathe ca. 1 cm long, at an annulus below the apex of the ramicaul; floral bracts tubular, 3 mm long; pedicels 2 mm long; ovary curved, 2-3 mm long; **sepals** light yellow, glabrous externally, cellular papular-pubescent within on the outer thirds, the dorsal sepal forward, connate to the synsepal for 2 mm, oblong-ovate, obtuse, slightly convex, 8 mm long, 4 mm wide, 5-veined, the lateral sepals connate into a concave, broadly ovate-suborbicular synsepal, 5.5 mm long, 6.5 mm wide unexpanded, 6-veined, with the apex rounded, slightly recurved, minutely bifid; **petals** light yellow, transversely ovate, 1.25 mm long, 3 mm wide, 3-veined, concave below the broadly thickened and rounded, apical margin; **lip** light yellow, thick, subquadrate, 1 mm long, 1.25 mm wide, 0.6 mm deep, concave anteriorly with the apex obtuse, the bar with a concave glenion, the dorsum with 3 rounded calli, the base broadly truncate, hinged to the base of the column; **column** stout, 1 mm long, 1.5 mm wide, the foot obsolescent, the anther and the stigma apical and bilobed.

ECUADOR: **Pichincha**: Valley of Lloa, 1857, *W. Jameson s.n.* (Holotype of *S. velutina*: K); Mt. Pichincha near Irutiflas, June 1886, *A. Sodiro 9* (holotype of *S. hians* destroyed at B, lectotype here designated: QPLS); west flank of Iliniza, Cerro Azul, alt. 2800 m, 23 Jan. 1987, *C. Luer, J. Luer & A. Hirtz 12455* (MO).
Imbabura: new road west of Otavalo, alt. ca. 3000 m, 7 Feb. 1979, *C. Luer, J. Luer, A. Hirtz & R. Escobar 3882, 3893* (SEL); Selva Alegre, alt. 2850 m, 6 Apr. 1984, *C. Luer, S. Dalström & T. Höijer 9987* (MO).

This species, apparently endemic in the Andes of central Ecuador, is closely related to several other concepts which appear distinct when single specimens are considered. However, intermediate variations occur. *Stelis velutina* appears to be vegetatively variable. The usually yellow, bilabiate flowers face downward in a crowded, secund raceme. The sepals are minutely papillose-pubescent within; the margin of the petals is broad and flattened; and the lip is concave and obtuse with three, rounded calli on the dorsum.

126. Stelis venosa Luer & Endara, Monogr. Syst. Bot. Missouri Bot. Gard. 95: 132, 2003.

Ety.: From the Latin *venosus*, "full of veins," referring to the sepals.

ECUADOR: **Cañar**: north slope of Cerro del Gatel, above Rivera, alt. 2600-2700 m, 2 Feb. 1988, *E. Molau, B. Eriksen & M. Fredriksen 2874* (Holotype of *S. venosa*: AAU; Isotype: GB), C. Luer illustr. 20509.
Napo: terrestrial on road bank, Km 83, Quito to Baeza, alt. 2200 m, 30 June 1985, *C.H. Dodson & A. Hirtz 15874* (MO).

This species was described in Part Two of the *Stelis* of Ecuador in *Icones Pleurothallidinarum 26*, but an illustration of *Stelis applanata* Luer & Hirtz was inadvertently used for Figure 126. The correct illustration for Figure 126. is presented.

342., 342a,. Stelis vulcani Rchb.f., Otia Bot. Hamburg. 1: 19, 1878.

Ety.: The possessive of *Vulcanus*, the fire-god, referring to the volcanic habitat of the plant.

Syn.: *Pleurothallis corazonica* Schltr., Repert. Spec. Nov. Regni Veg. 14: 128, 1915, not Lehm. & Kraenzl.
Ety.: Named for Mt. Corazon where the plant was collected.

Syn.: *Stelis ecallosa* Garay, Canad. J. Bot. 34: 358, 1956.
Ety.: From the Latin *ecallosus*, "without a callus," referring to the lip.

Plant small, medium to large in size, lithophytic to epiphytic, caespitose; roots slender. Ramicauls erect, slender, 5-12 cm long, with a tubular sheath near the middle, and 2 others at the base. **Leaf** erect, coriaceous, narrowly elliptical, acute, 4-11 cm long including a petiole 0.5-1.5 cm long, 0.9-1.5 cm wide, narrowly cuneate below into the petiole. **Inflorescence** 1-2 erect, congested, distichous, many-flowered racemes with many flowers open simultaneously, 15-20 cm long including the peduncle 5-8 cm long, subtended by a spathe ca. 1 cm long, at an annulus below the apex of the ramicaul; floral bracts tubular, acute, 2.5-4 mm long; pedicels 2 mm long; ovary 1.5-2 mm long; **sepals** white to yellow, occasionally purple, glabrous, the dorsal sepal free except at the base, erect, ovate, obtuse, slightly convex, 5-7 mm long, 2.5-4 mm wide, 3- to 5-veined, the lateral sepals connate into a concave, broadly ovate-suborbicular synsepal, 4-5 mm long, 4-5.5 mm wide unexpanded, 6-veined, with the apex slightly recurved, minutely bifid; **petals** yellow, transversely oblong, 1-1.2 mm long, 1.5-2 mm wide, 3-veined, concave below the broadly rounded, narrowly thickened, apical margin; **lip** yellow, thick, subquadrate, 1 mm long, 1-1.3 mm wide, 0.5-0.75 mm deep, shallowly concave anteriorly with the apex obtuse, the disc filled with a bilobed bar, with a glenion between the lobes, the base variably callous, broadly truncate, hinged to the base of the column; **column** stout, 1 mm long, 1.5 mm wide, the foot obsolescent, the anther and the stigma apical and bilobed.

Selected representative collections:
ECUADOR: eastern declivity of central Ecuador where Lehmann was collecting in June 1877, am Vulkangestein, alt. 8,000 ft., June 1877, *F.C. Lehmann s.n.* (Holotype: W).
Carchi: between Tulcán and Maldonado, alt. 2900-3100 m, 2 Mar. 1974, *G. Harling & L. Andersson 12413* (AMES, GB).
Sucumbíos: south of Santa Barbara, alt. 2700 m, 6 Apr. 1985, *C. Luer, J. Luer, A. & X. Hirtz 11090* (MO).
Imbabura: east of Volcán Cayambe, alt. 10,200 ft., 14 July 1944, *W.B. Drew E-320* (AMES); Selva Alegre, alt. 2430 m, 1 May 1981, *C. Luer, J. Luer & A. Hirtz 6047* (SEL).
Pichincha: on rocks and trunks of old trees on Mt. Corazon, Sept. 1892, *A. Sodiro 6* (holotype of *Pleurothallis corazonica* destroyed at B); Mt. Corazon, *A. Sodiro 6b* (lectotype of *P. corazonica* here designated: QPLS; isolectotype: MO).
Napo: Tena, 14 Oct. 1939, *E. Asplund 9311* (holotype of *S. ecallosa*: S); east of Papallacta, alt. 2600 m, 26 Mar. 1972, *B. MacBryde & J.D. Dwyer 1251* (SEL); north of Baeza, alt. 1500 m, 10 Aug. 1978, *C. Luer, J. Luer, A. Hirtz & A. Andreetta 3224* (SEL).
Pastaza: east of Puyo, alt. 600 m, 19 Mar. 1976, *C. Luer, J. Luer & P. Taylor 907* (SEL).
Morona-Santiago: Limon to Gualaceo, alt. 1900 m, 22 Mar. 1974, *G. Harling & L. Andersson 12741* (AMES, GB); between Sigsig and Chiquinda, alt. 3000 m, May 2004, *A. Hirtz 8723* (MO), C. Luer illustr. 20858.
Cañar: road between Pindilig and Rivera, alt. 2800-3000 m, 8 June 1979, *B. Løjtnant, A. & M. Molau 14299, 14307* (AAU, GB).

Azuay: between El Pan and Guachapala, alt. 7,500-9,800 ft., 4 Sept. 1945, *W.E. Camp E-5226* (AMES, NY); Sevilla de Oro, alt. 2400 m, 19 Apr. 1968, *G. Harling, G. Storm & B. Ström 8435* (GB); Río Paute, northeast of Osomache, alt. 2400 m, 3 Feb. 1988, *U. Molau, B. Eriksen & M. Fredrikson 2899* (GB).
Loja: east of Loja, alt. 2750 m, 21 May 1971, *B. MacBryde 323* (AMES); south of Yangana above Cachaco, alt. 2450 m, 12 May 1981, *C. Luer, J. Luer & D. D'Alessandro 6192* (SEL); Nudo de Sabanilla, alt. 2400 m, 10 Feb. 1982, *G. Harling et al. 20572* (GB).
Zamora-Chinchipe: Cajanuma range, south of Loja, alt. 2500 m, 21 Mar. 1985, *C. Luer, J. Luer, A. Hirtz & W. Flores 10772* (MO); south of Yangana, above Valladolid, alt. 2450 m, 23 Mar. 1985, *C. Luer, J. Luer, A. Hirtz & W. Flores 10758, 10921* (MO); Quebrada Honda below Valladolid, alt. 2200 m, 27 Mar. 1986, *D. D'Alessandro & H. Mendoza 541, 563* (MO); between Loja and Zamora, alt. 2750 m, 17 Apr. 1973, *L. Holm-Nielsen, S. Jeppesen, B. Løjtnant & B. Ølgaard 3660* (AMES, AAU).
PERU: **Huánuco**: Tingo Maria, near Carpish divide, alt. 2700 m, 3 Feb. 1984, *A. Gentry & D. Smith 44884* (MO).

This frequent and variable species is characterized by a caespitose habit with narrow leaves surpassed by one or two slender, many-flowered racemes of usually light yellow flowers, but sometimes with purple petals and lip. The dorsal sepal, with three or five veins, stands erect above the concave synsepal that sometimes splits above the middle, but the sepals remain connivent, nevertheless. The petals are transverse with a thickened edge. The lip is subquadrate with the bar fissured to the glenion. The callus on the dorsum is variably, often indistinctly lobed.

The description of *Stelis ecallosa* Garay applies to *Stelis vulcani*, which occurs commonly near Tena in the department of Napo where *S. ecallosa* was collected. No details of the lip were noted, hence the name meaning "without a callus." No material has been seen.

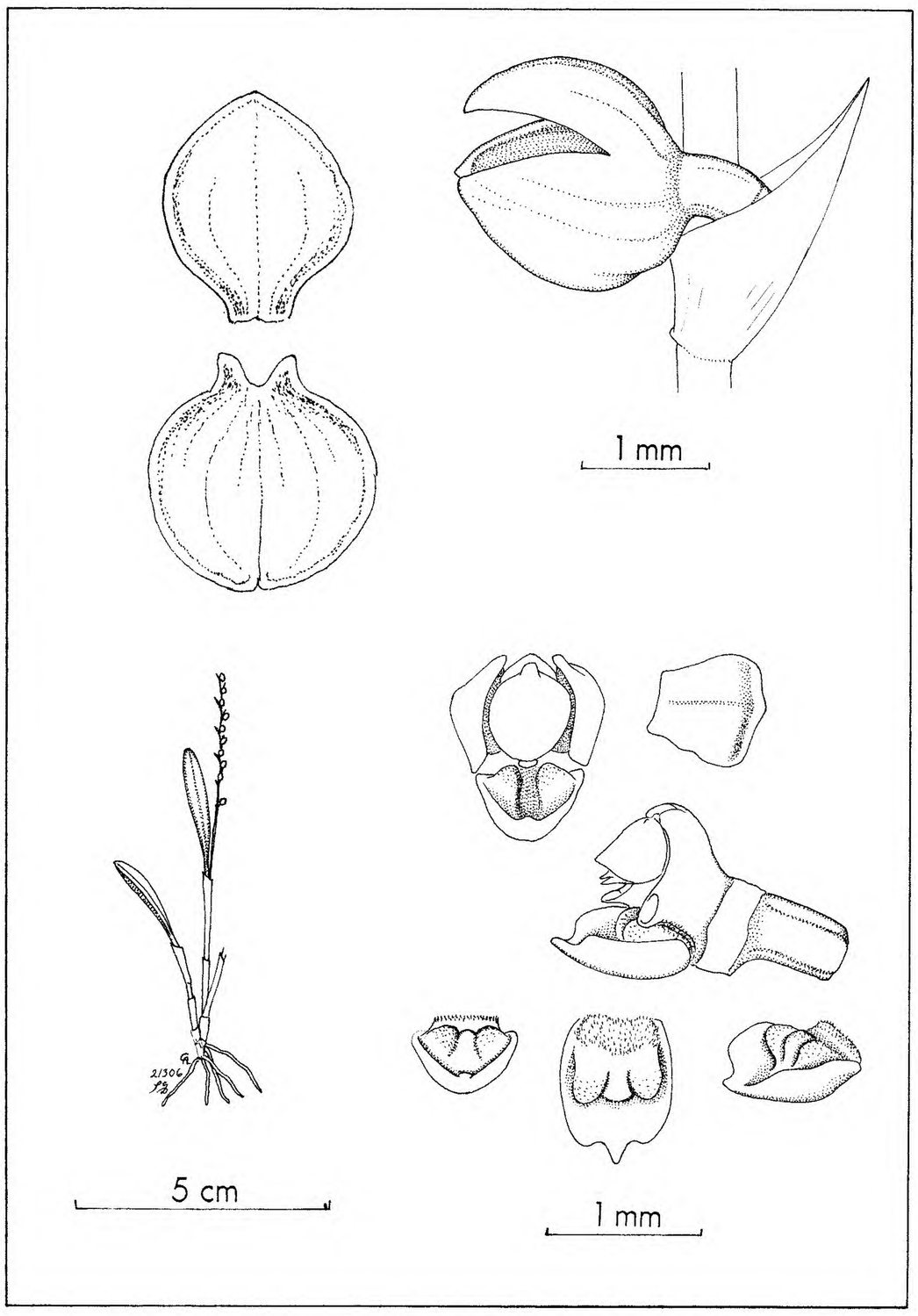


Fig. 307. Stelis abdita

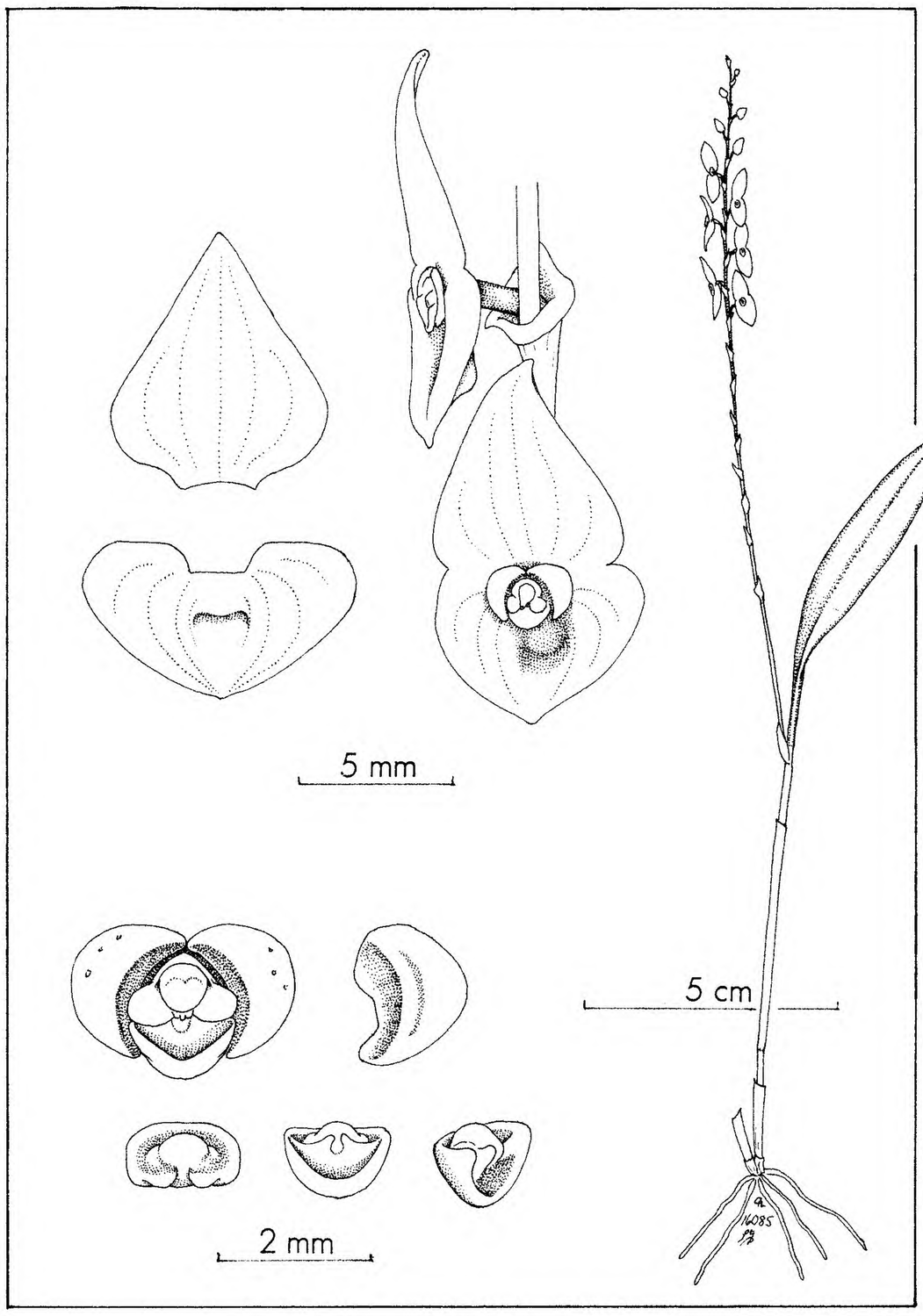


Fig. 308. Stelis aequoris

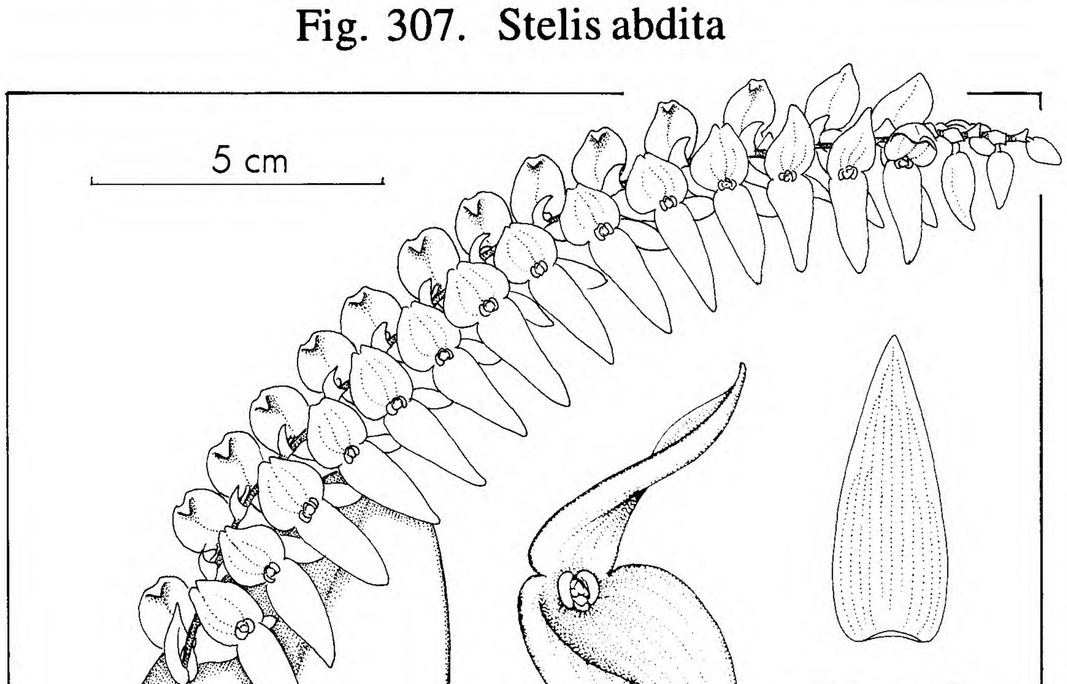


Fig. 309. Stelis allenii

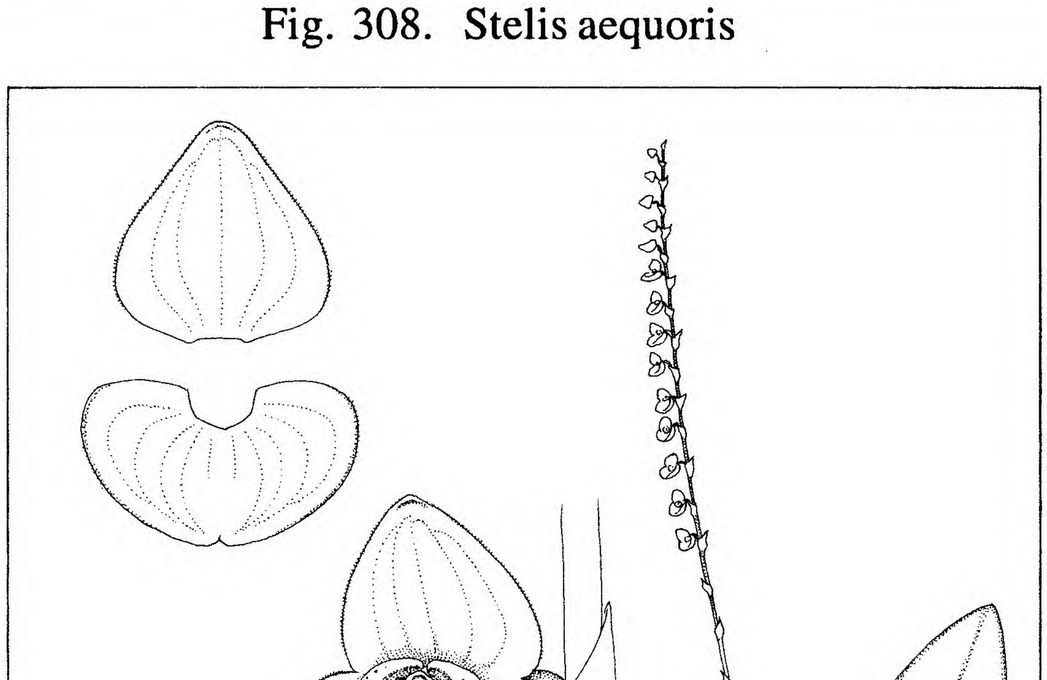


Fig. 310. Stelis aviceps

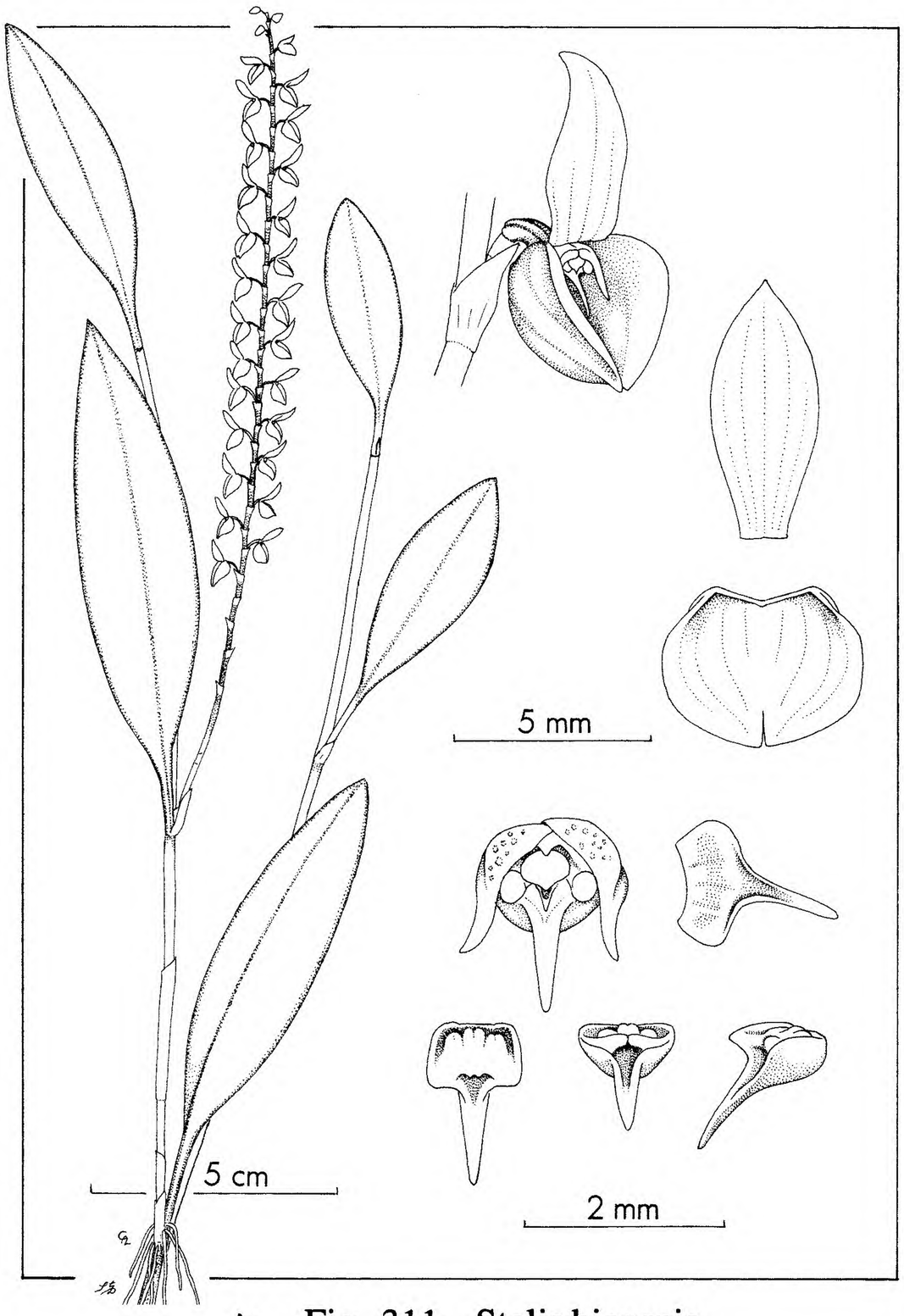


Fig. 311. Stelis bicornis

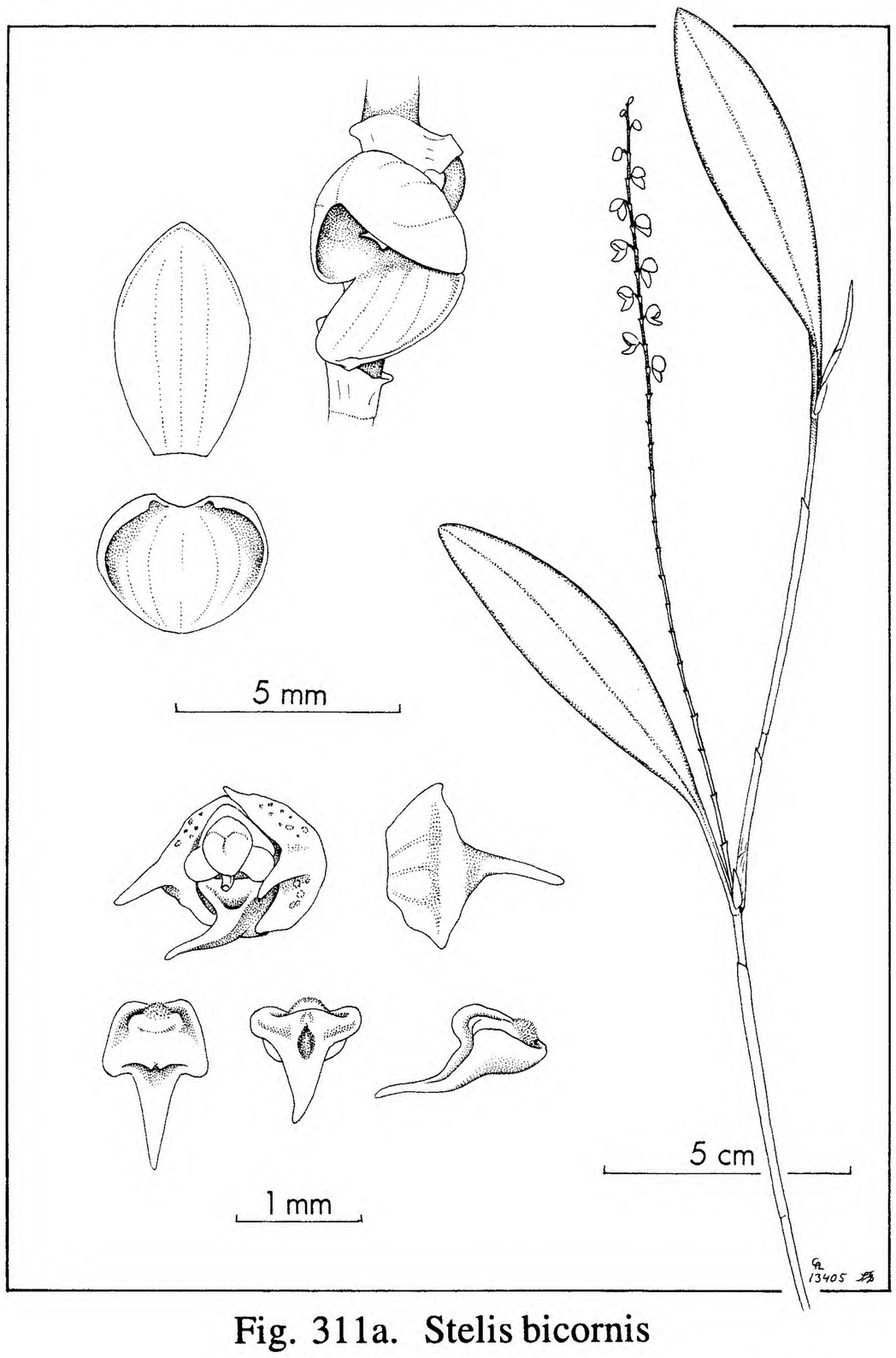


Fig. 311a. Stelis bicornis

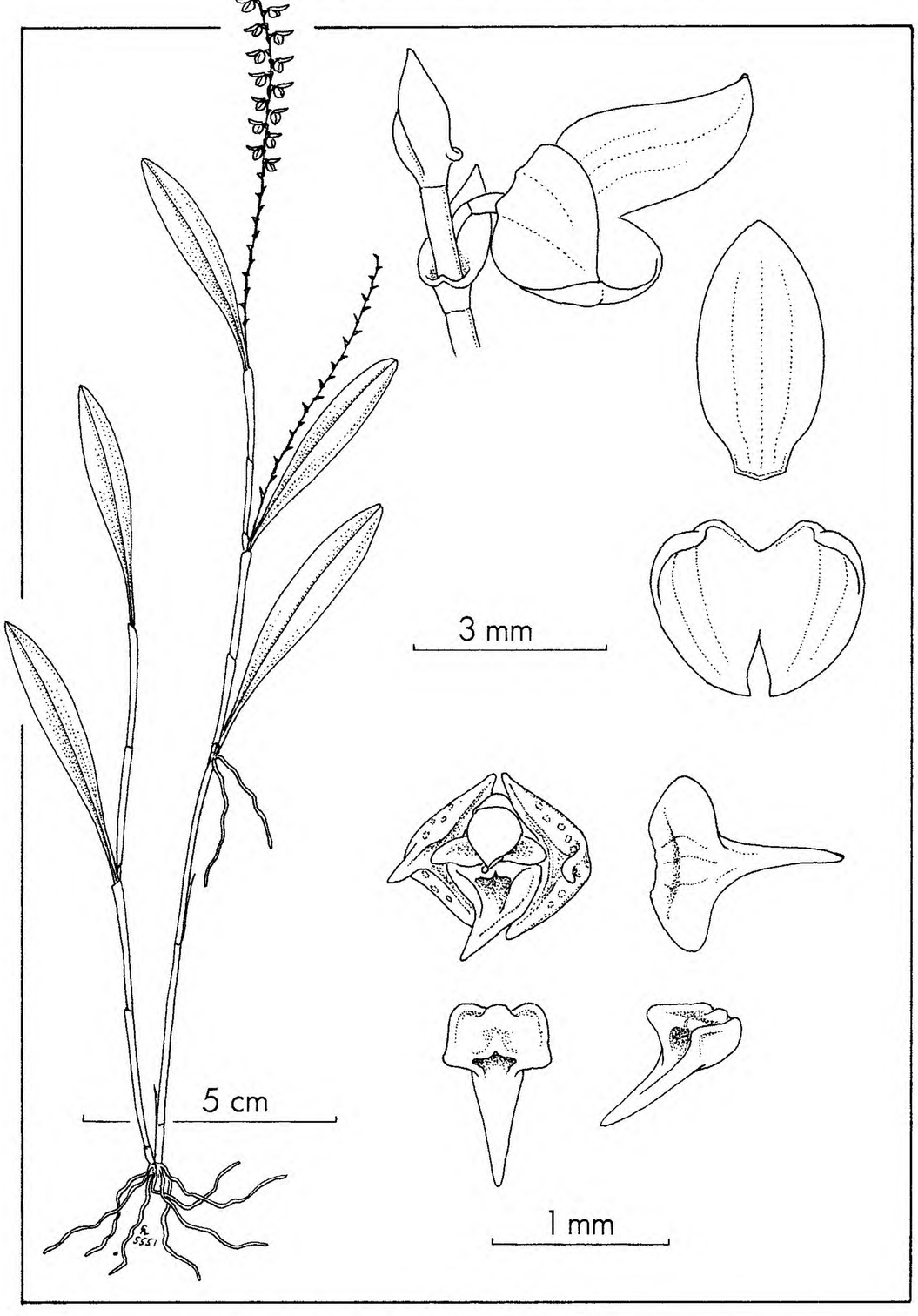


Fig. 312. Stelis biserrula

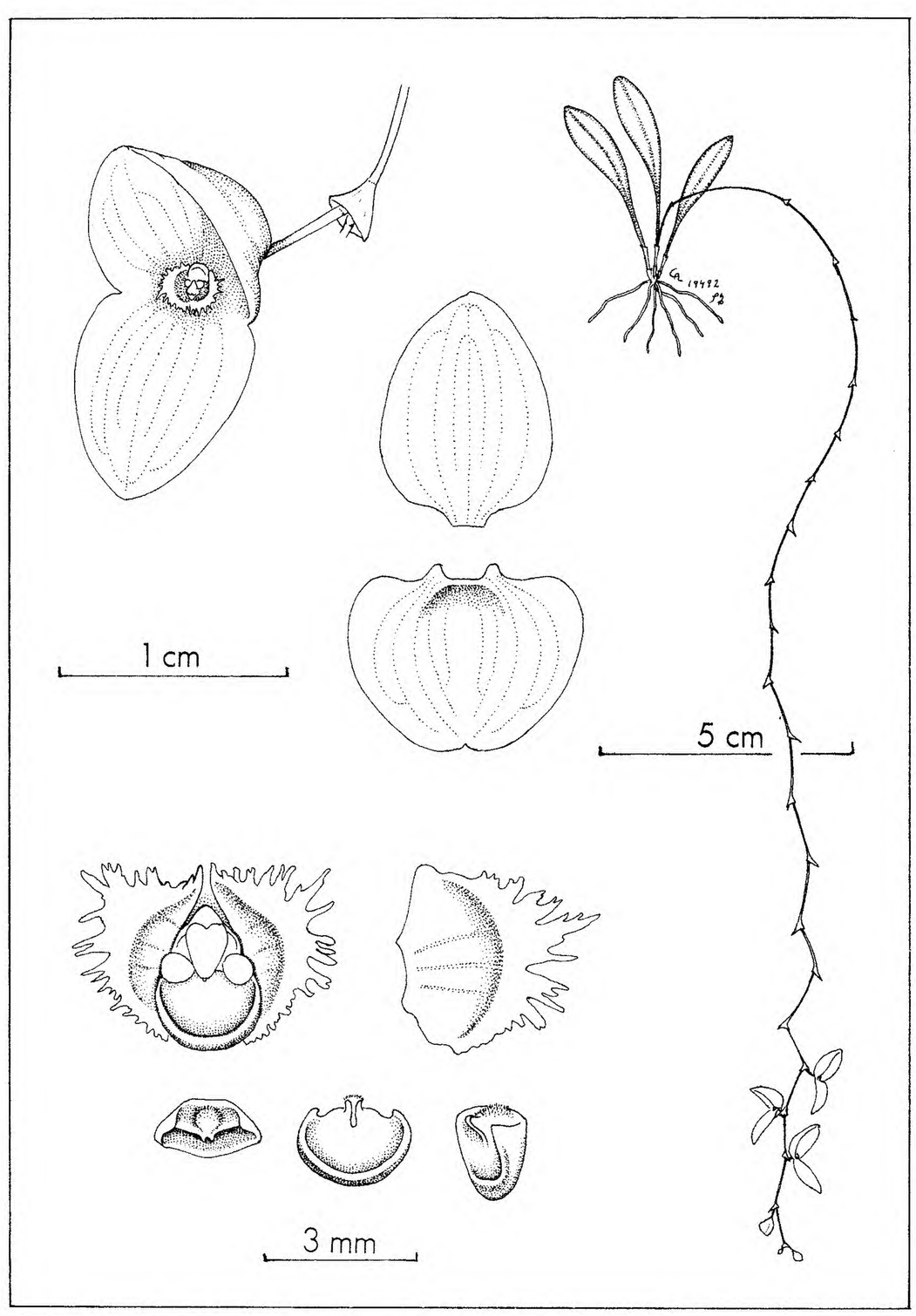


Fig. 313. Stelis dactyloptera

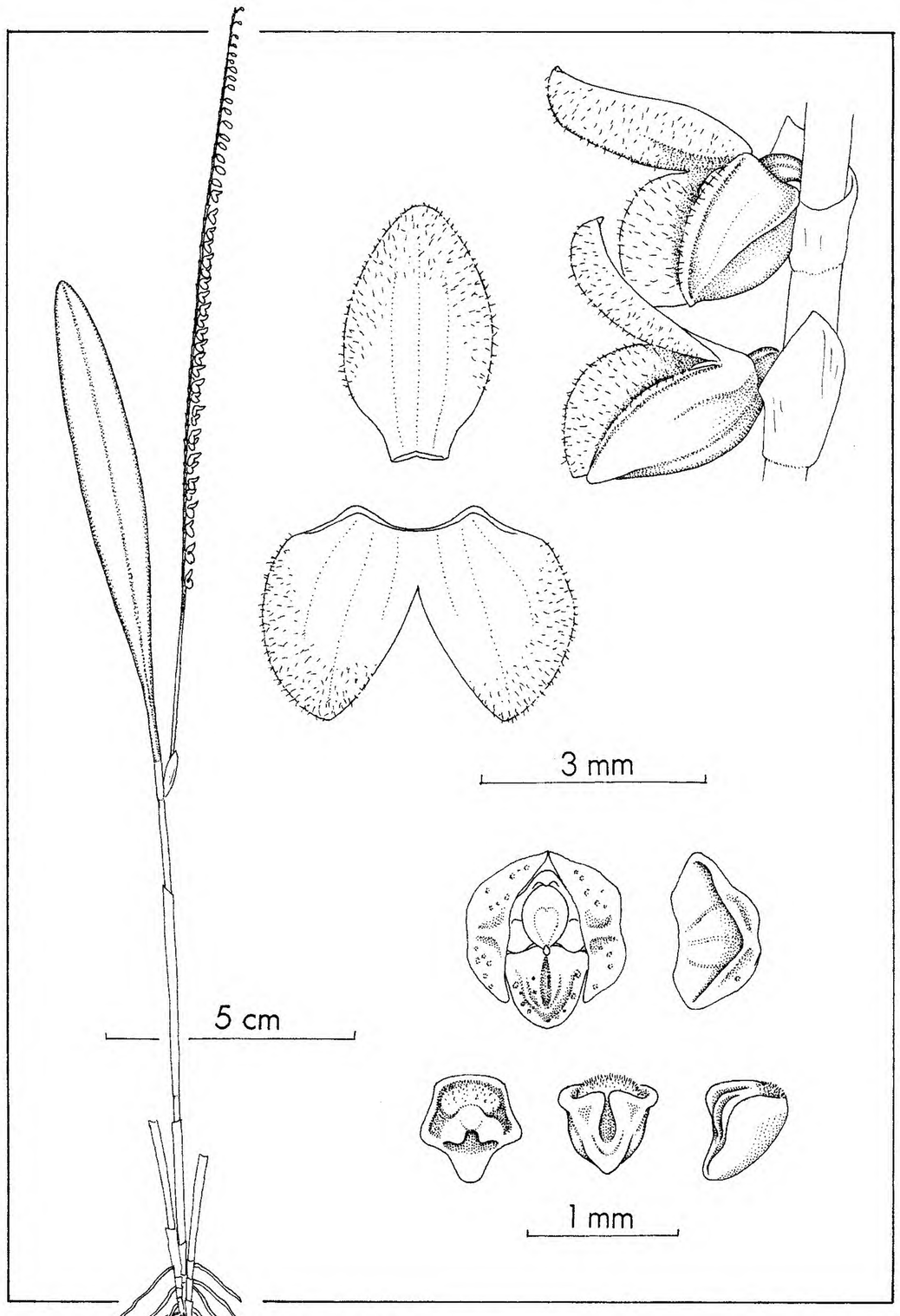


Fig. 253a. Stelis depauperata

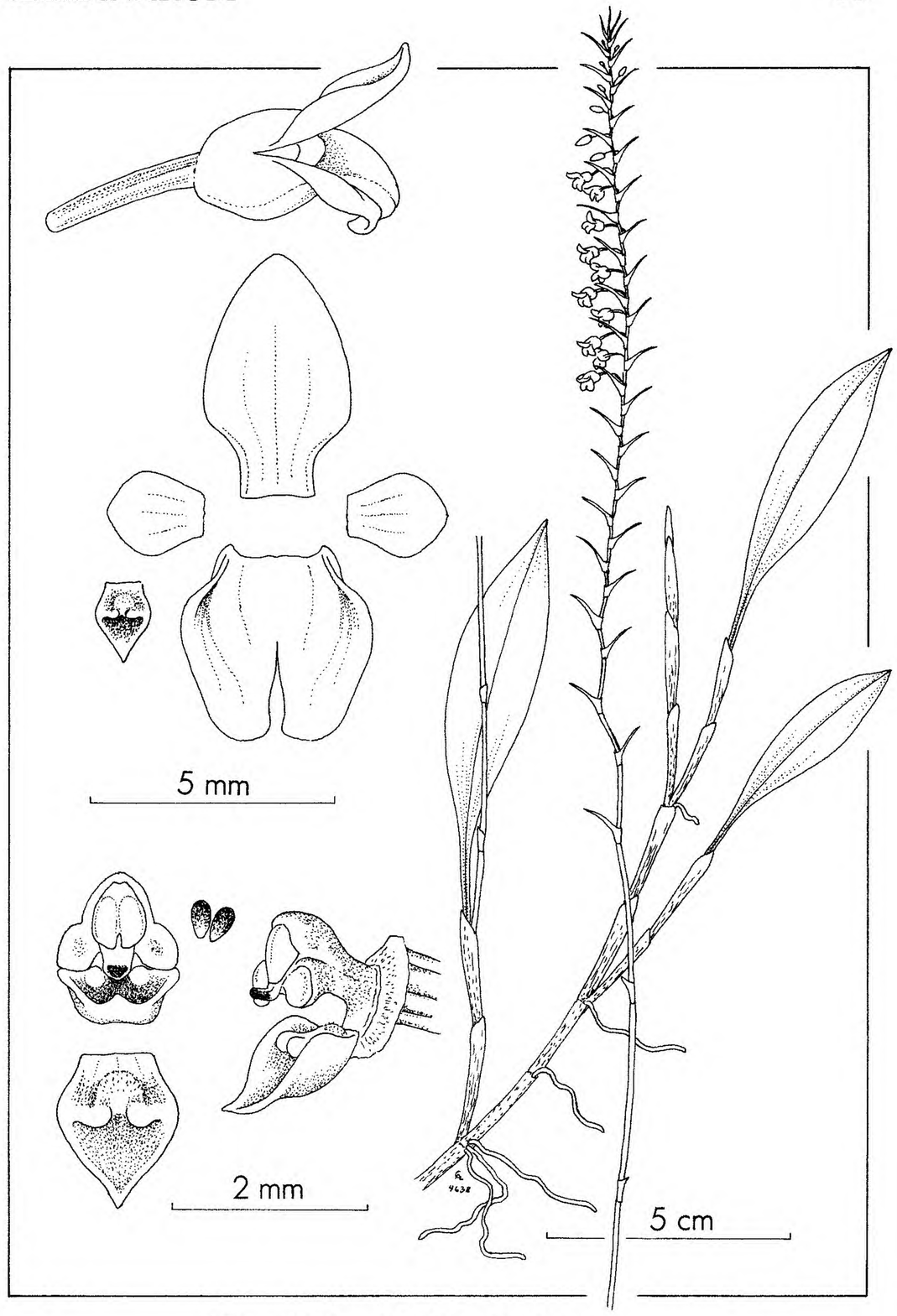


Fig. 314. Stelis dialissa

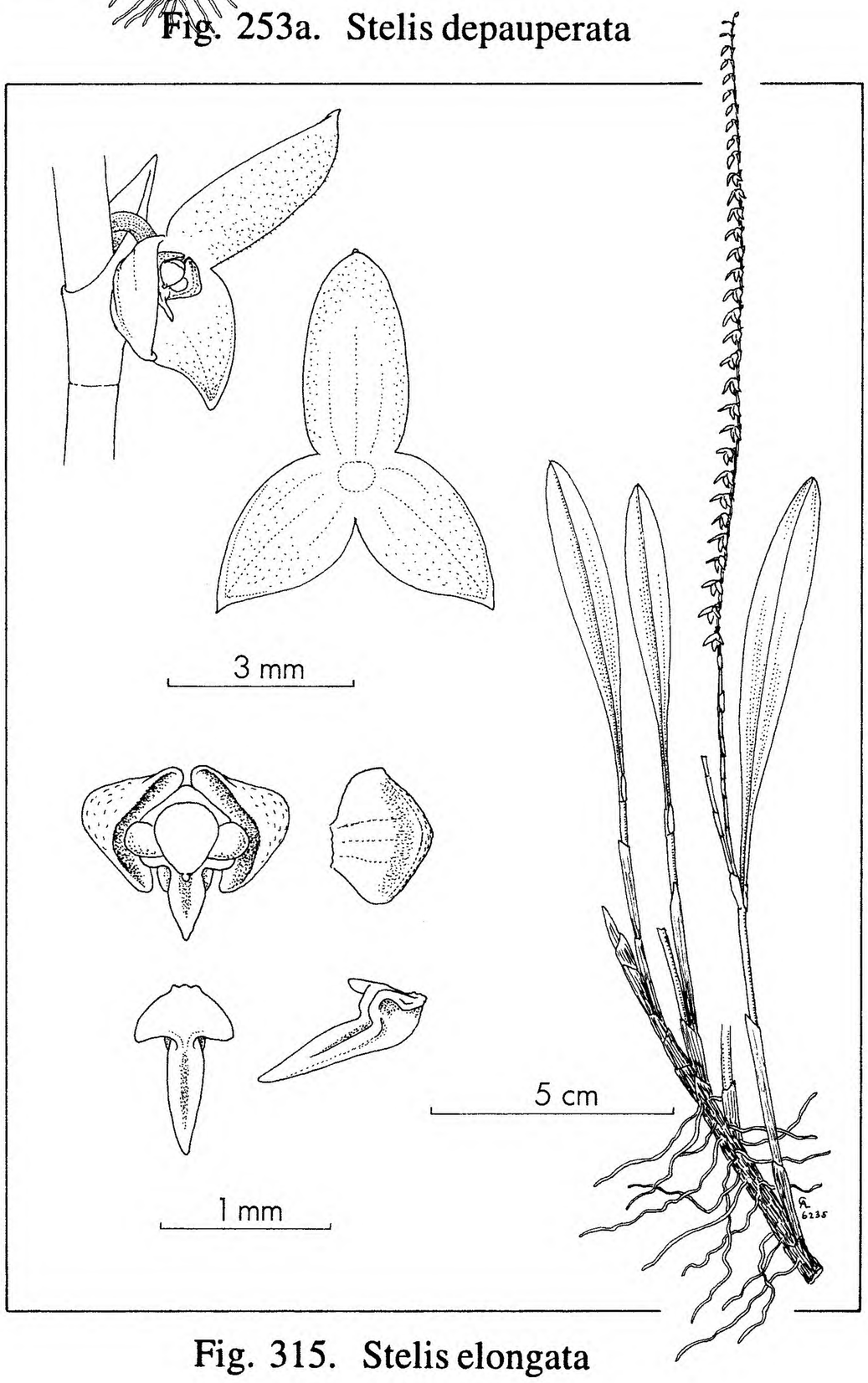


Fig. 315. Stelis elongata

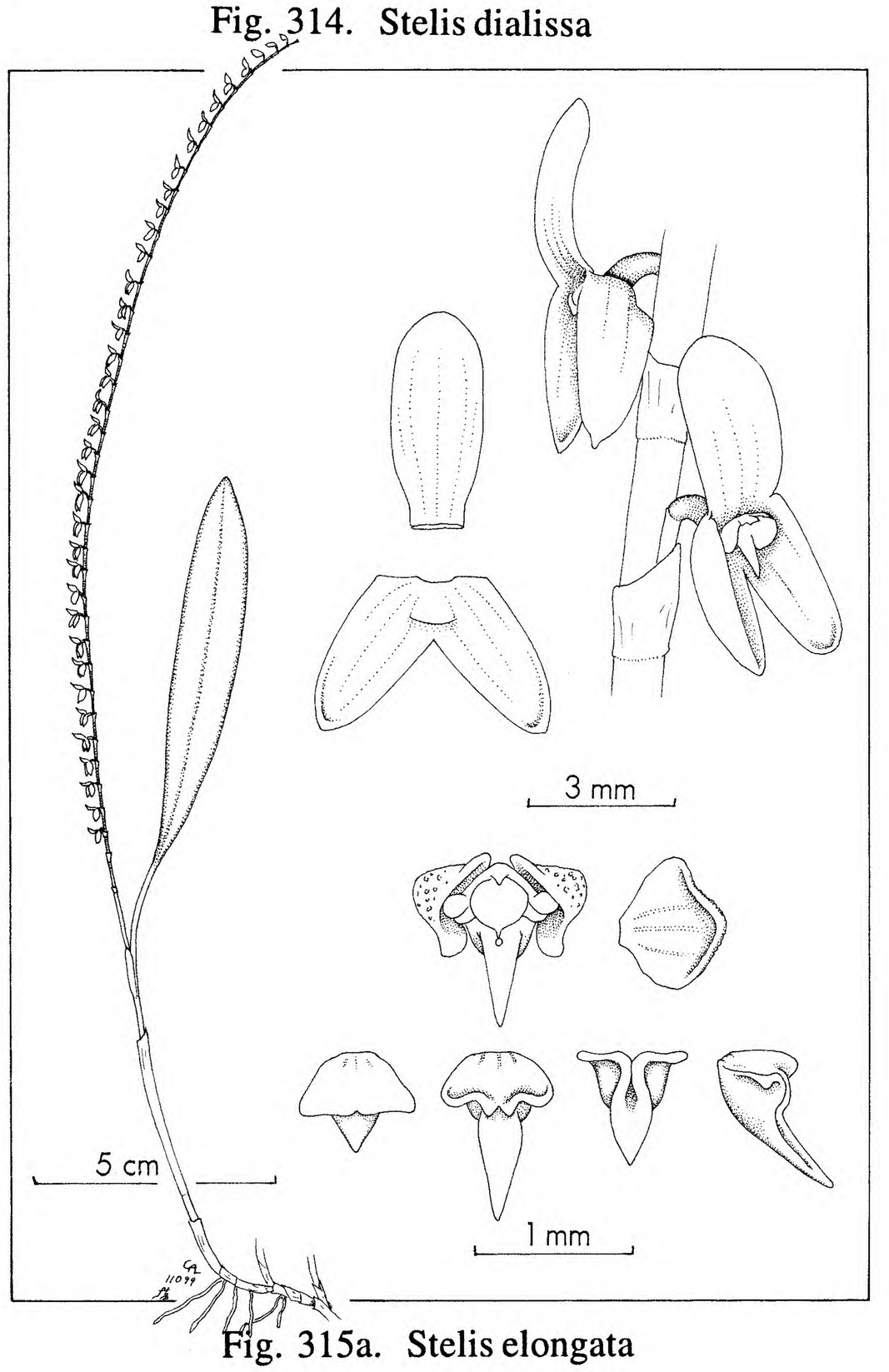


Fig. 315a. Stelis elongata

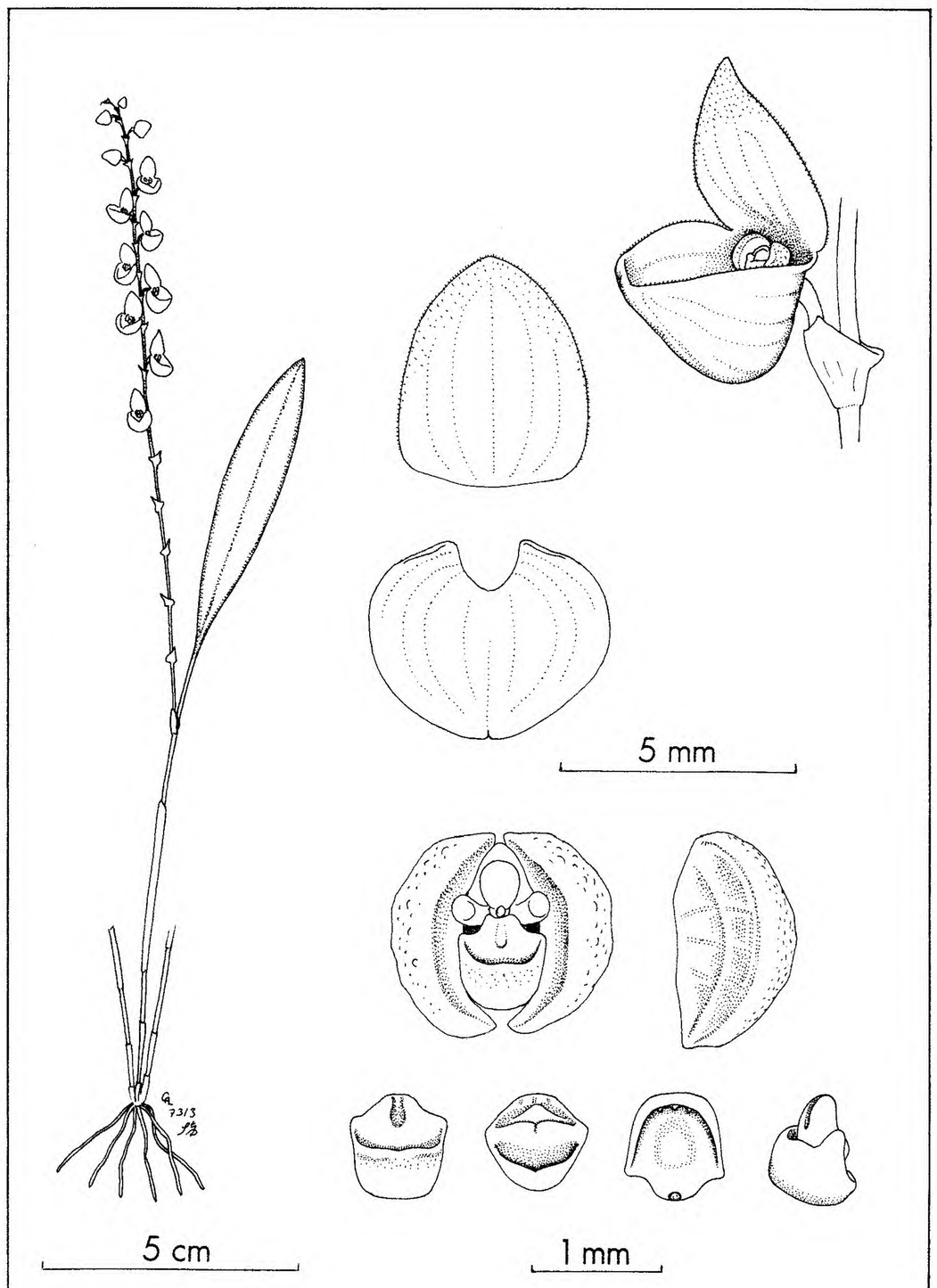


Fig. 316. Stelis flacca

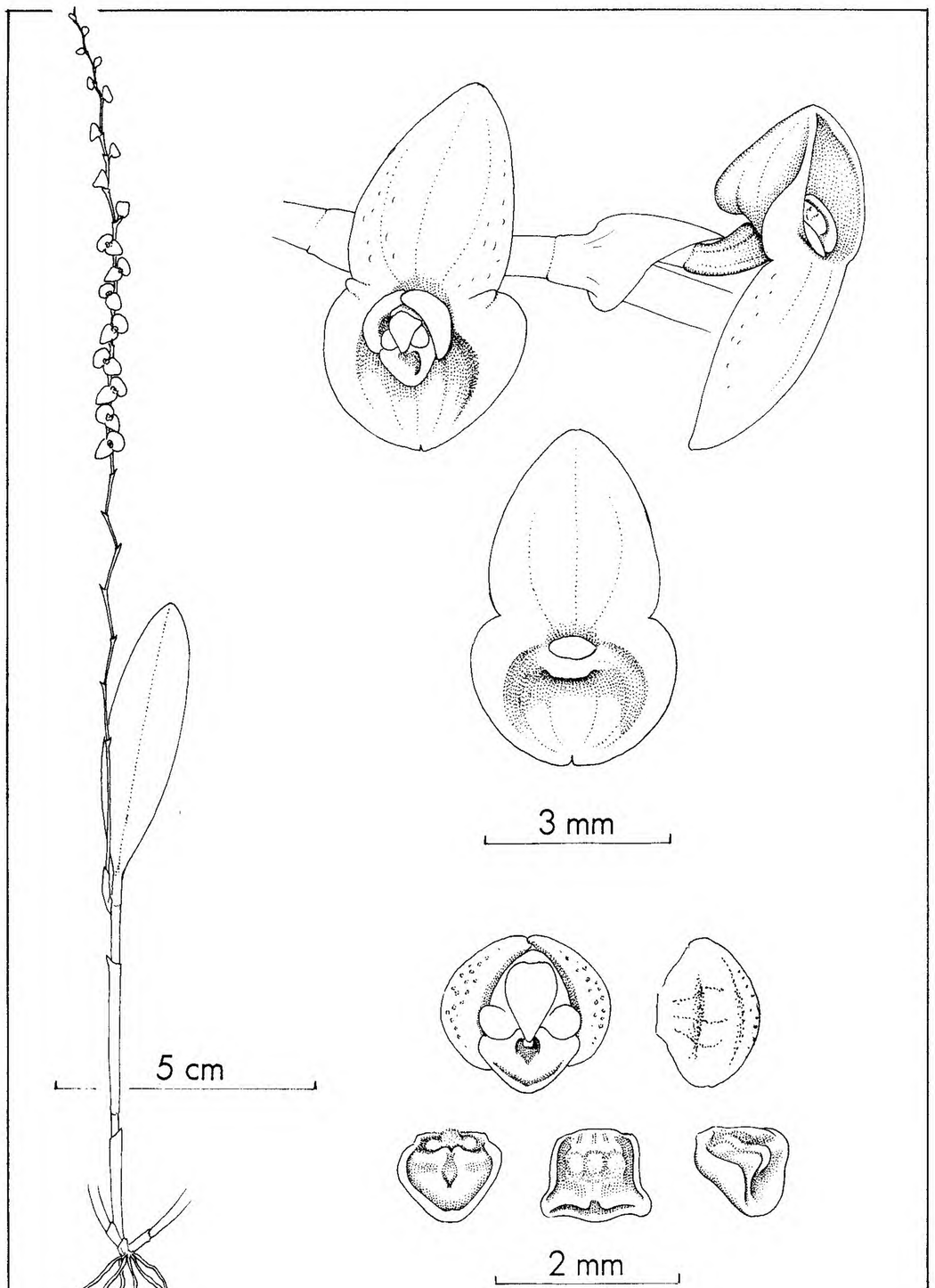


Fig. 317. Stelis gastrodes

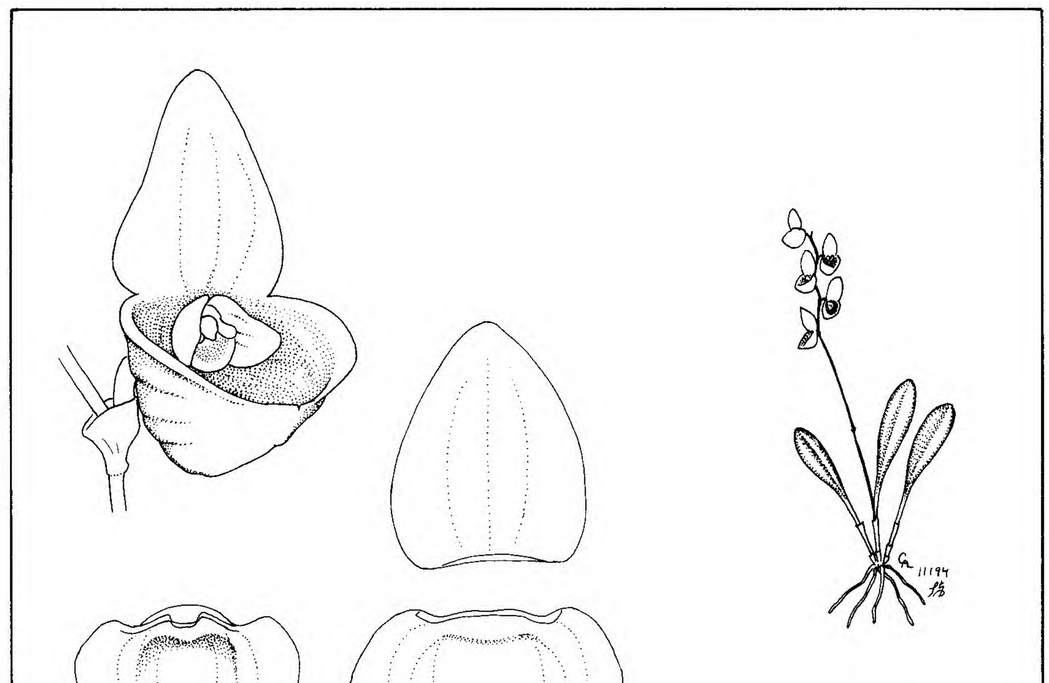


Fig. 318. Stelis globiflora

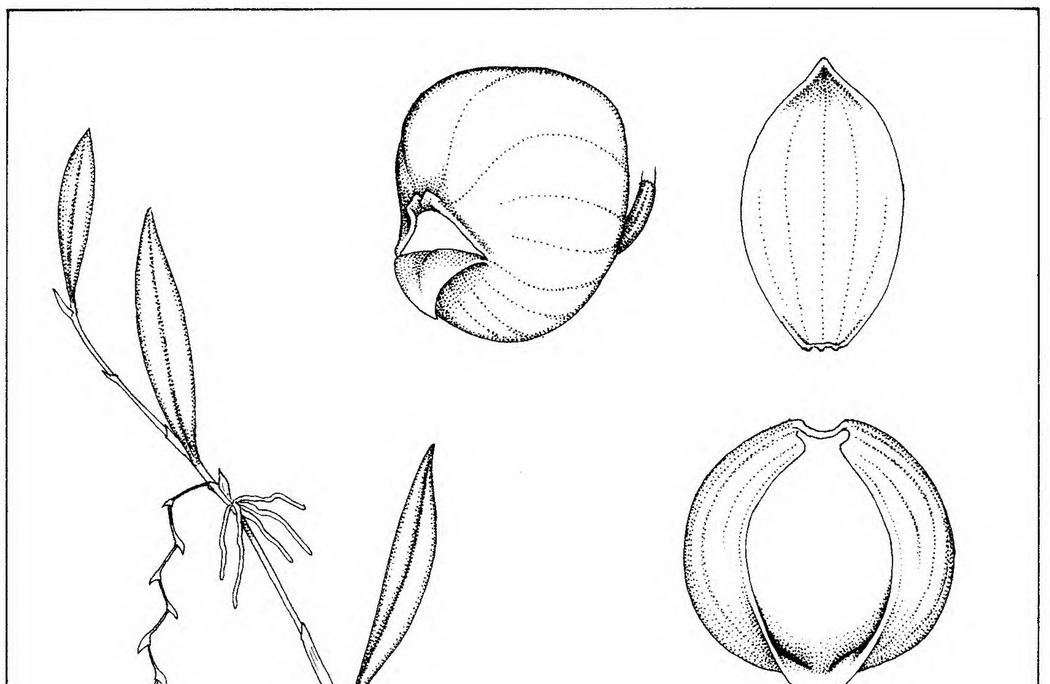


Fig. 319. Stelis glomerosa

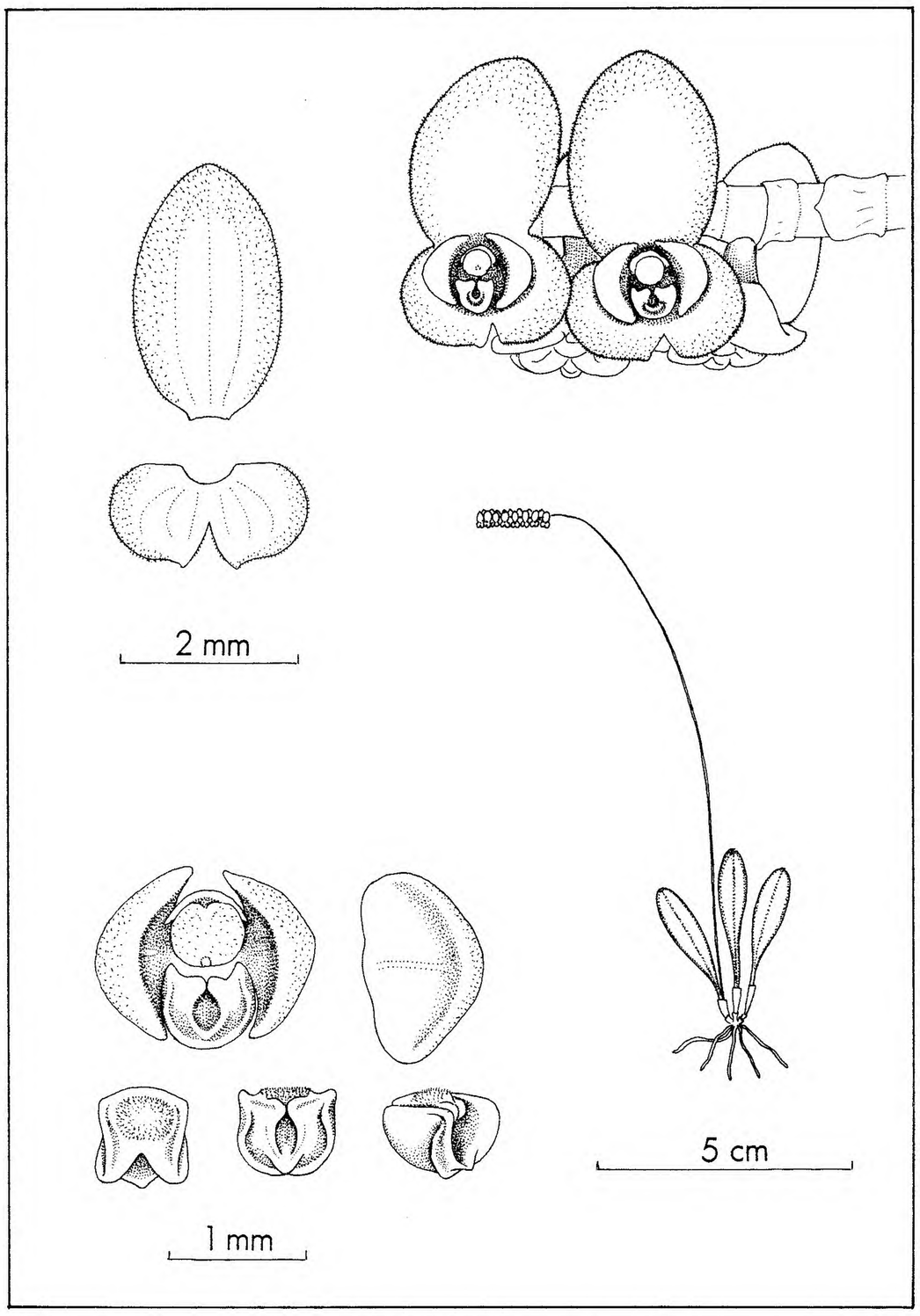


Fig. 320. Stelis glossula

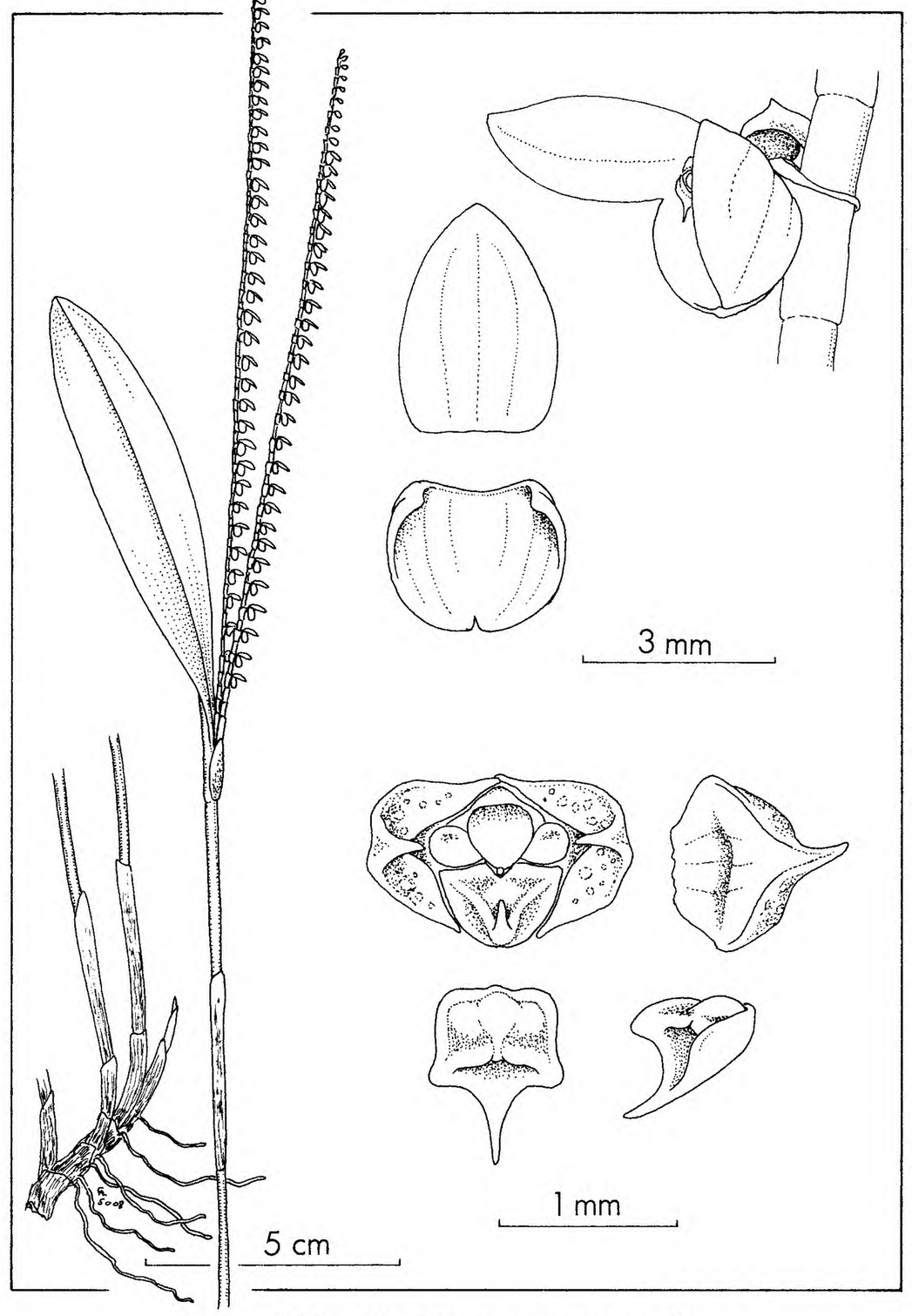


Fig. 321. Stelis guatemalensis

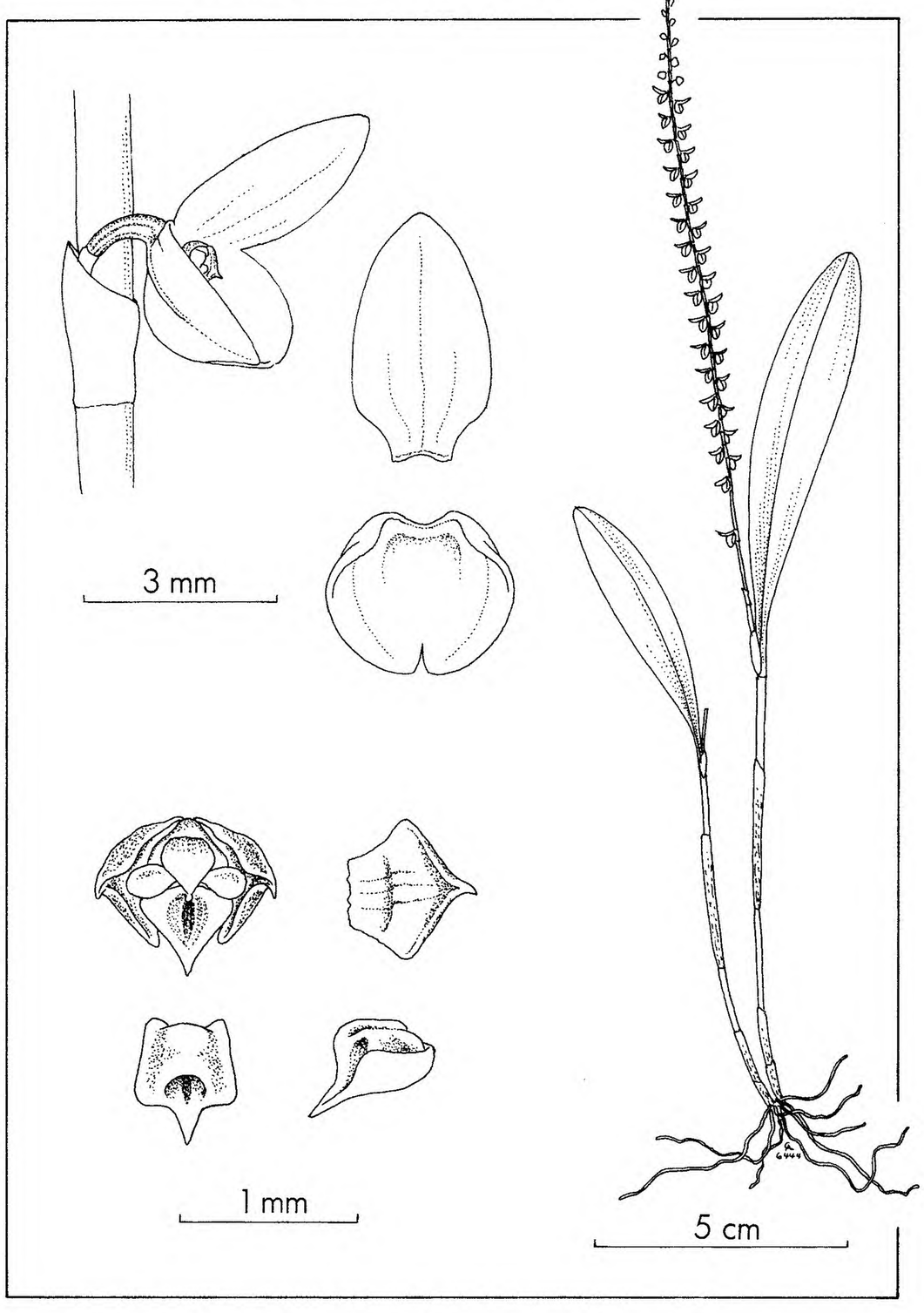


Fig. 321a. Stelis guatemalensis

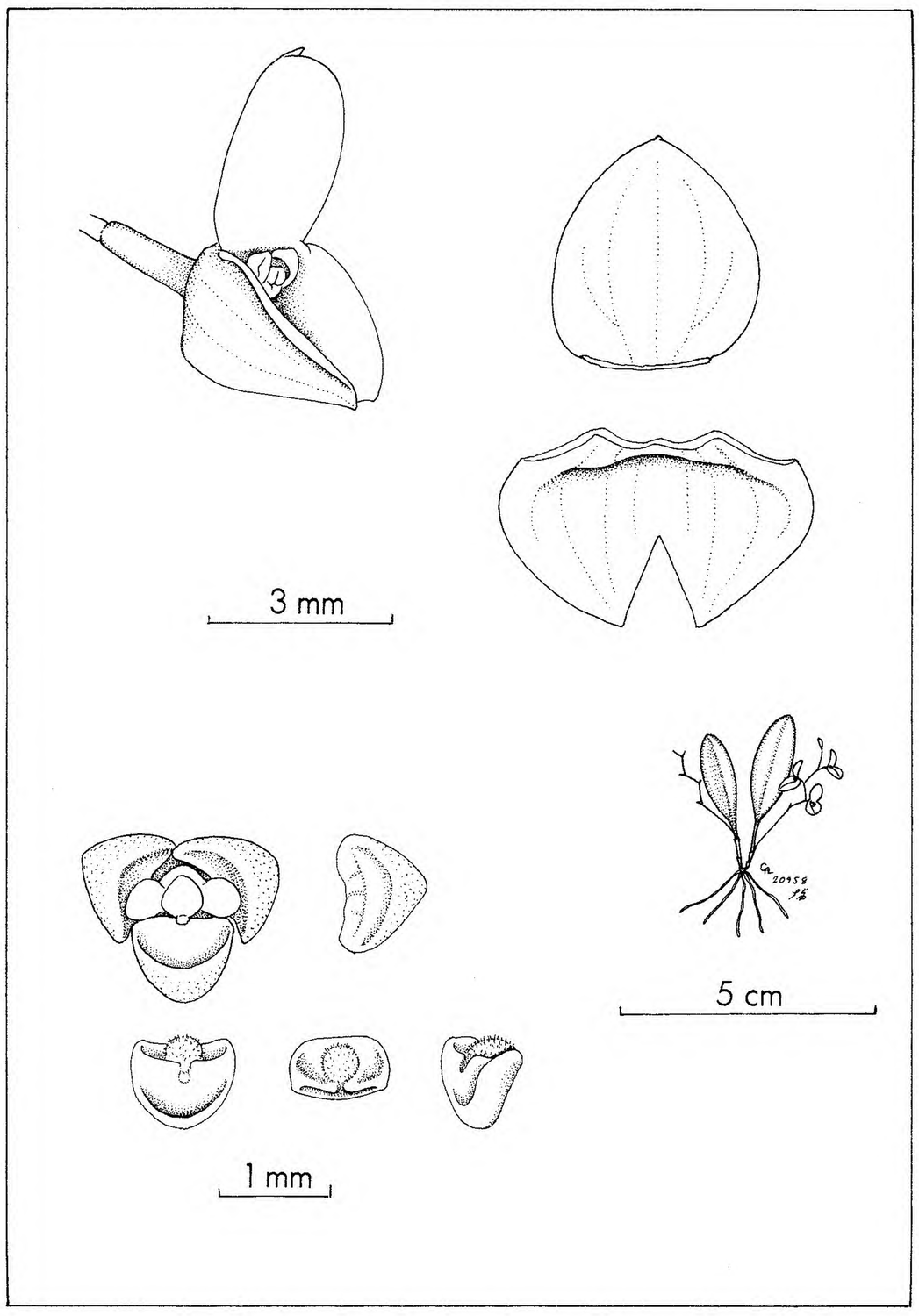


Fig. 322. Stelis jatunyacuënsis

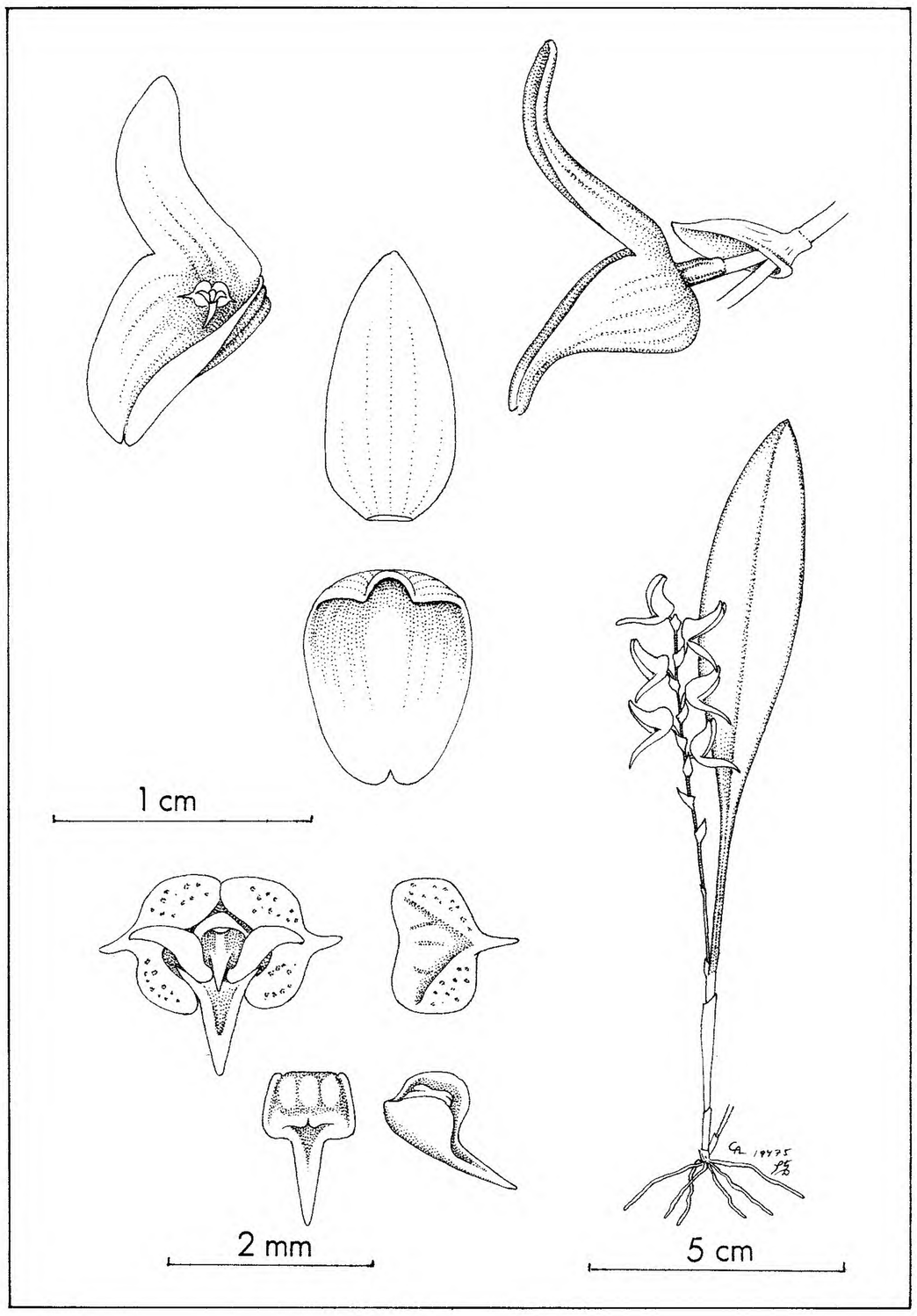


Fig. 323. Stelis langlassei

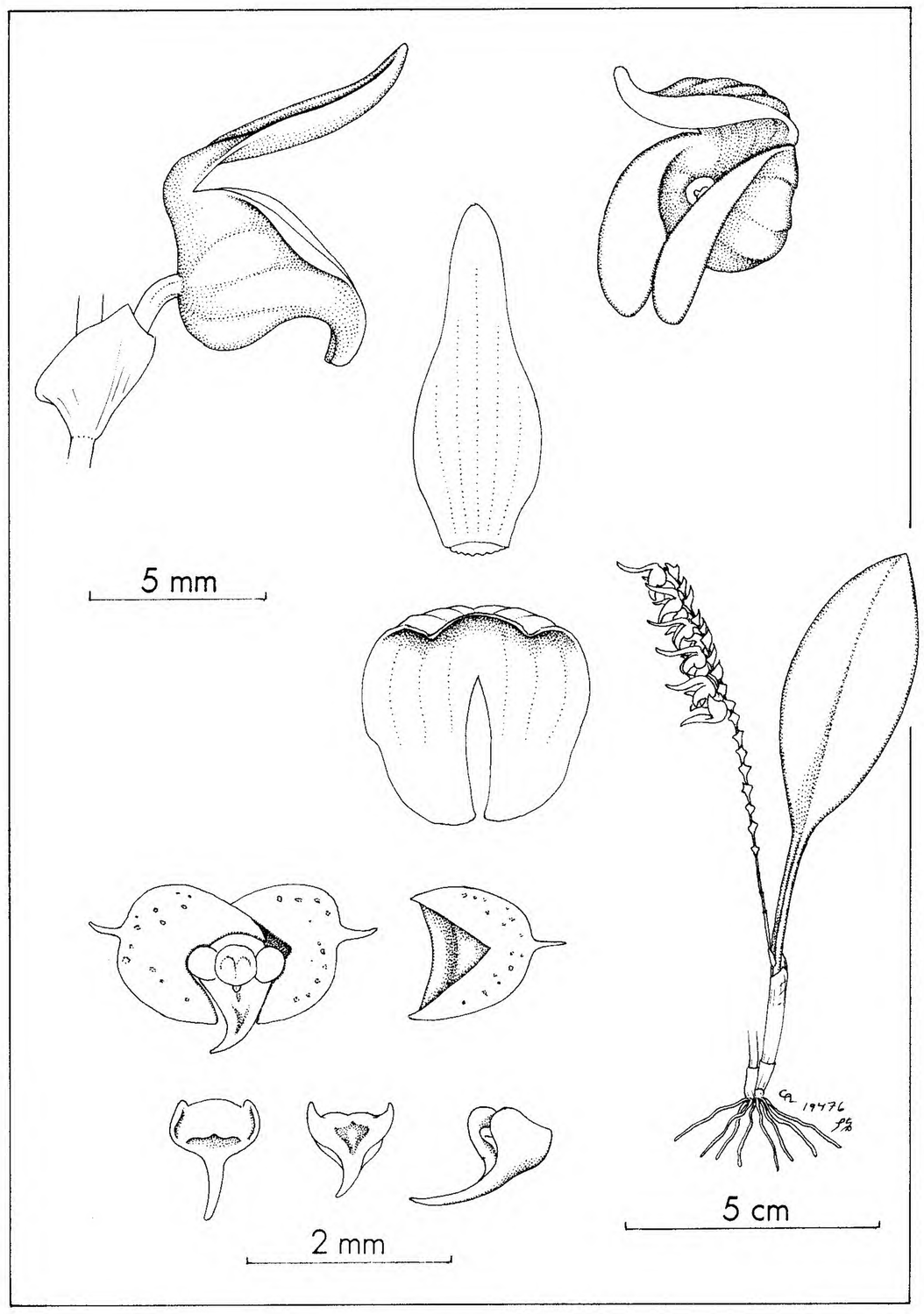


Fig. 323a. Stelis langlassei

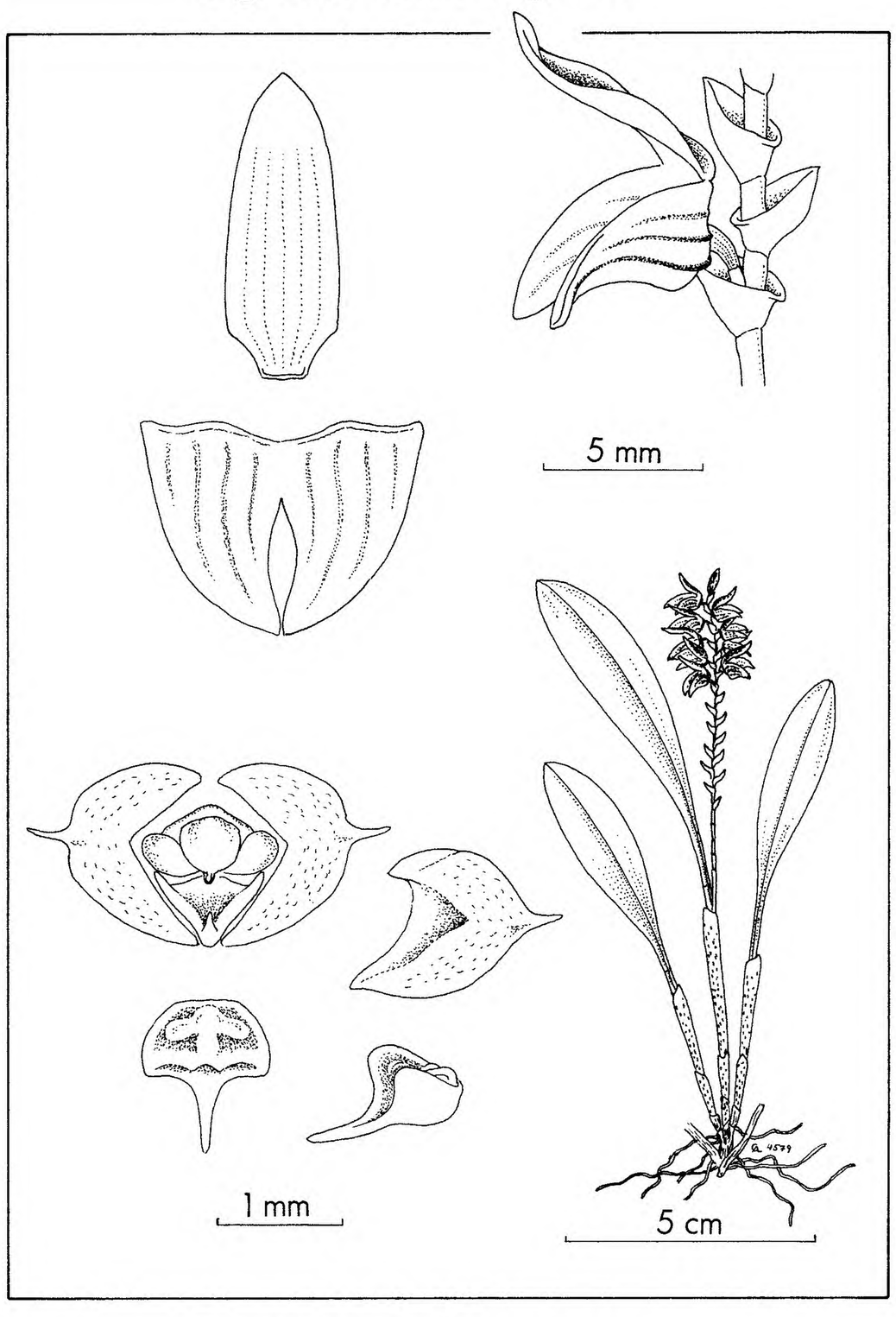


Fig. 323b. Stelis langlassei

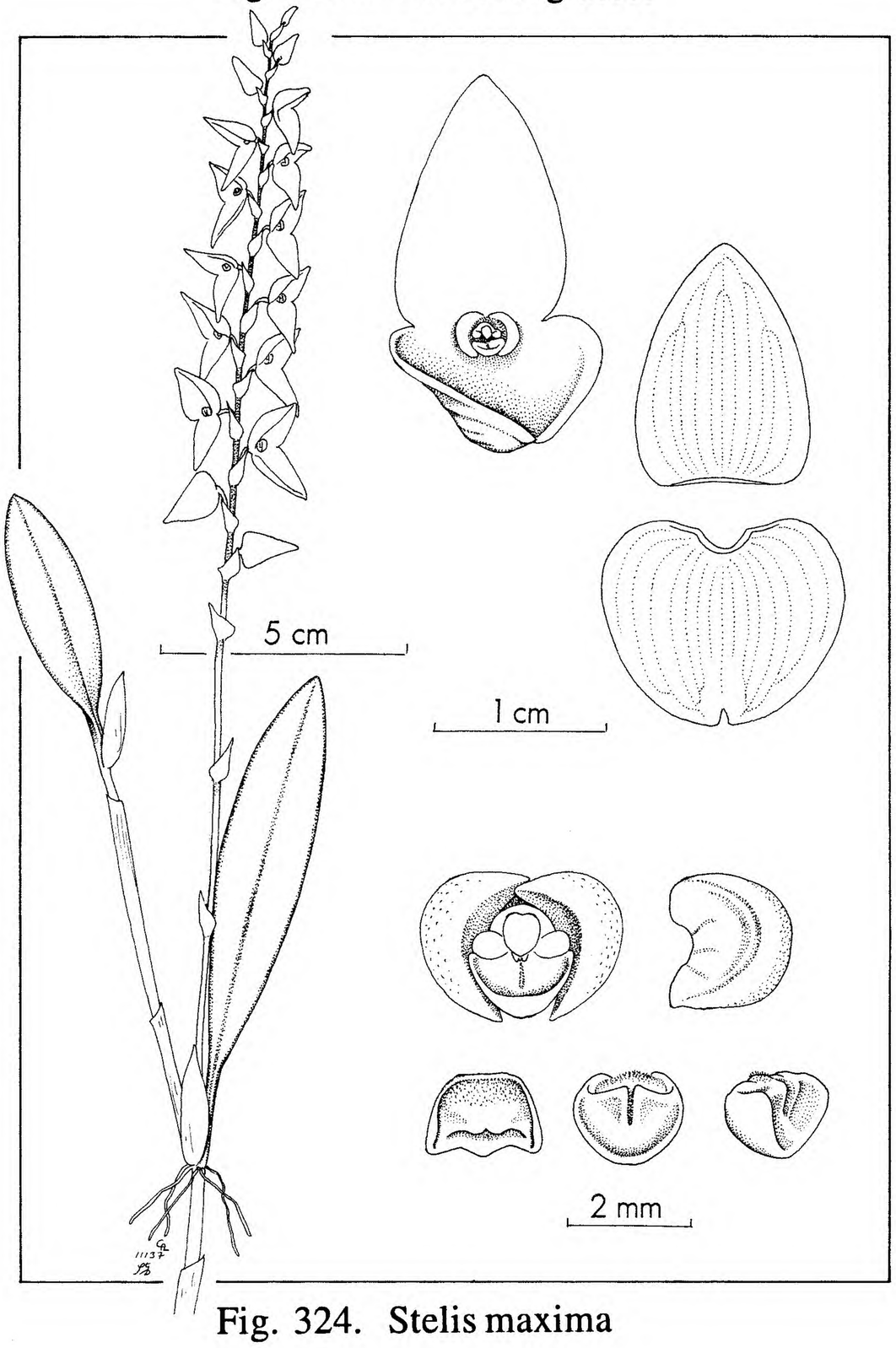


Fig. 324. Stelis maxima

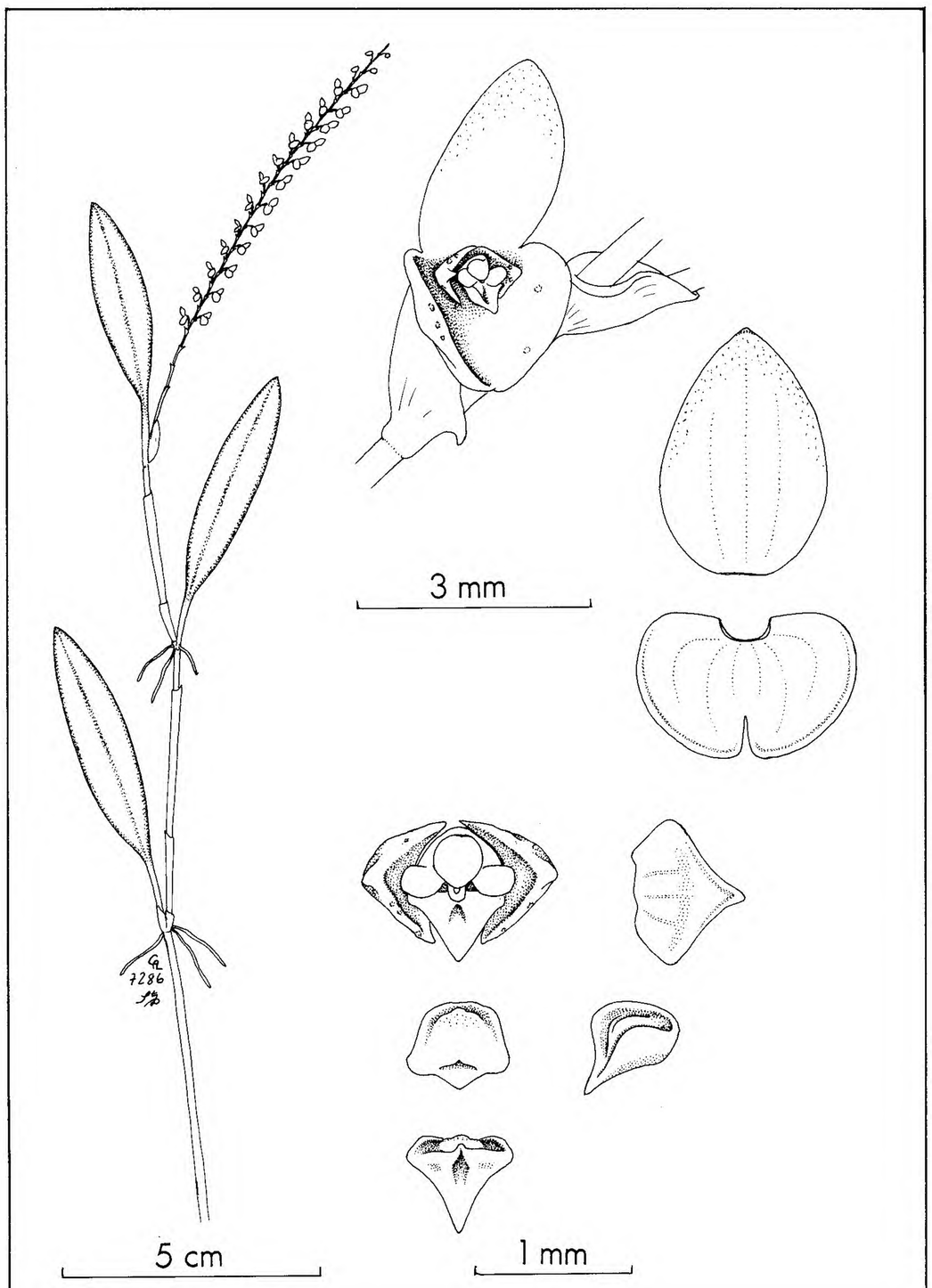


Fig. 325. Stelis mucronata

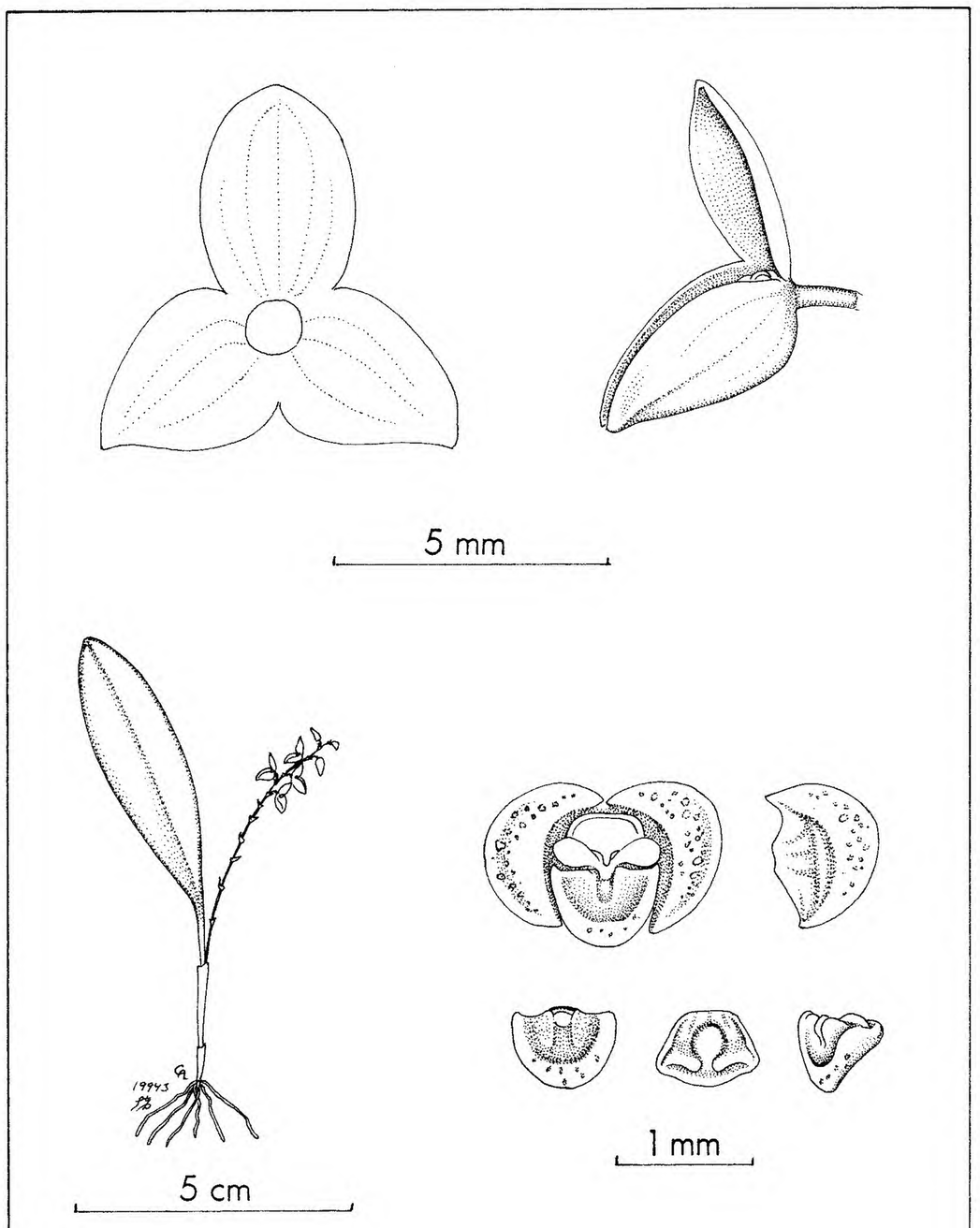


Fig. 326. Stelis nana

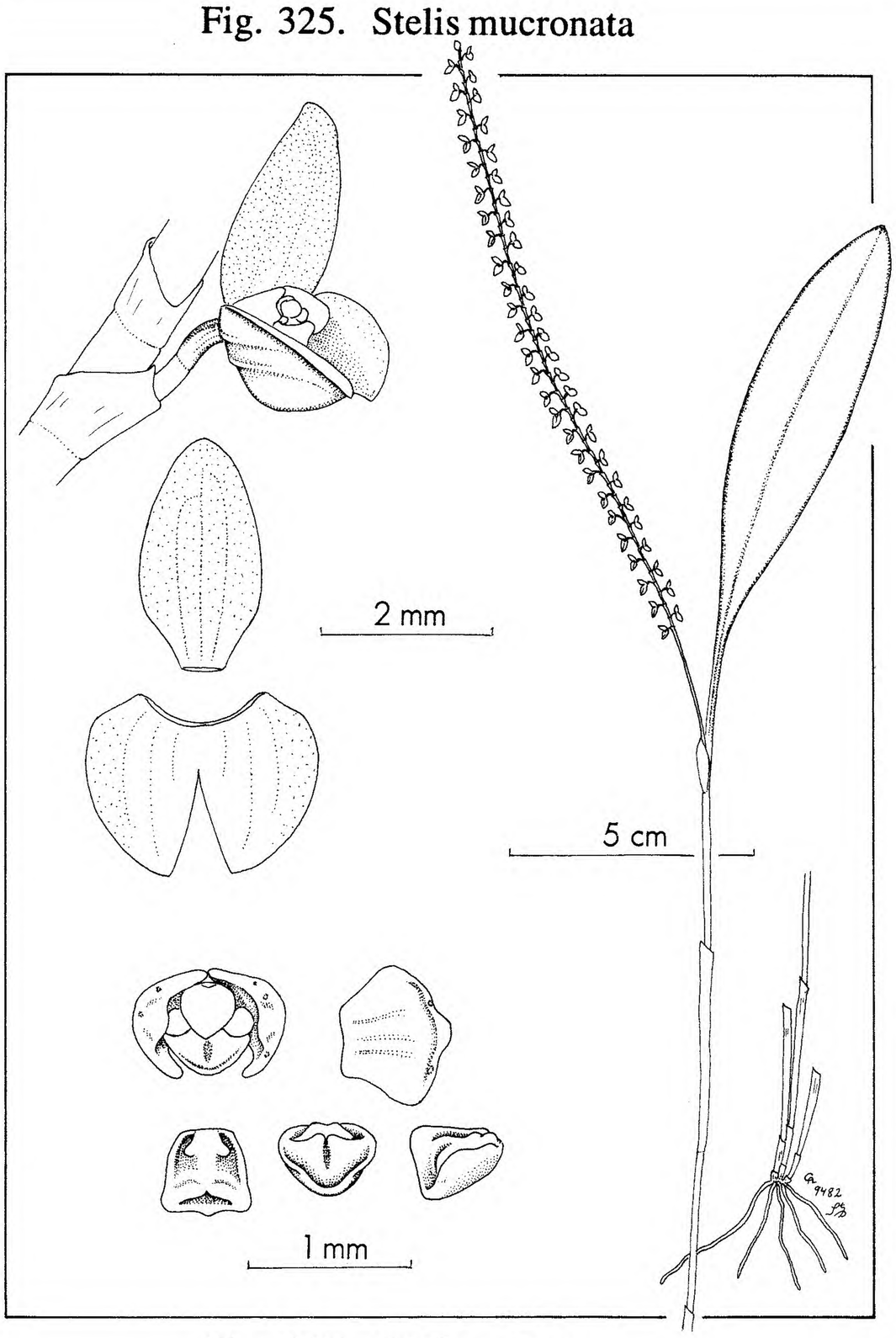


Fig. 327. Stelis nutans

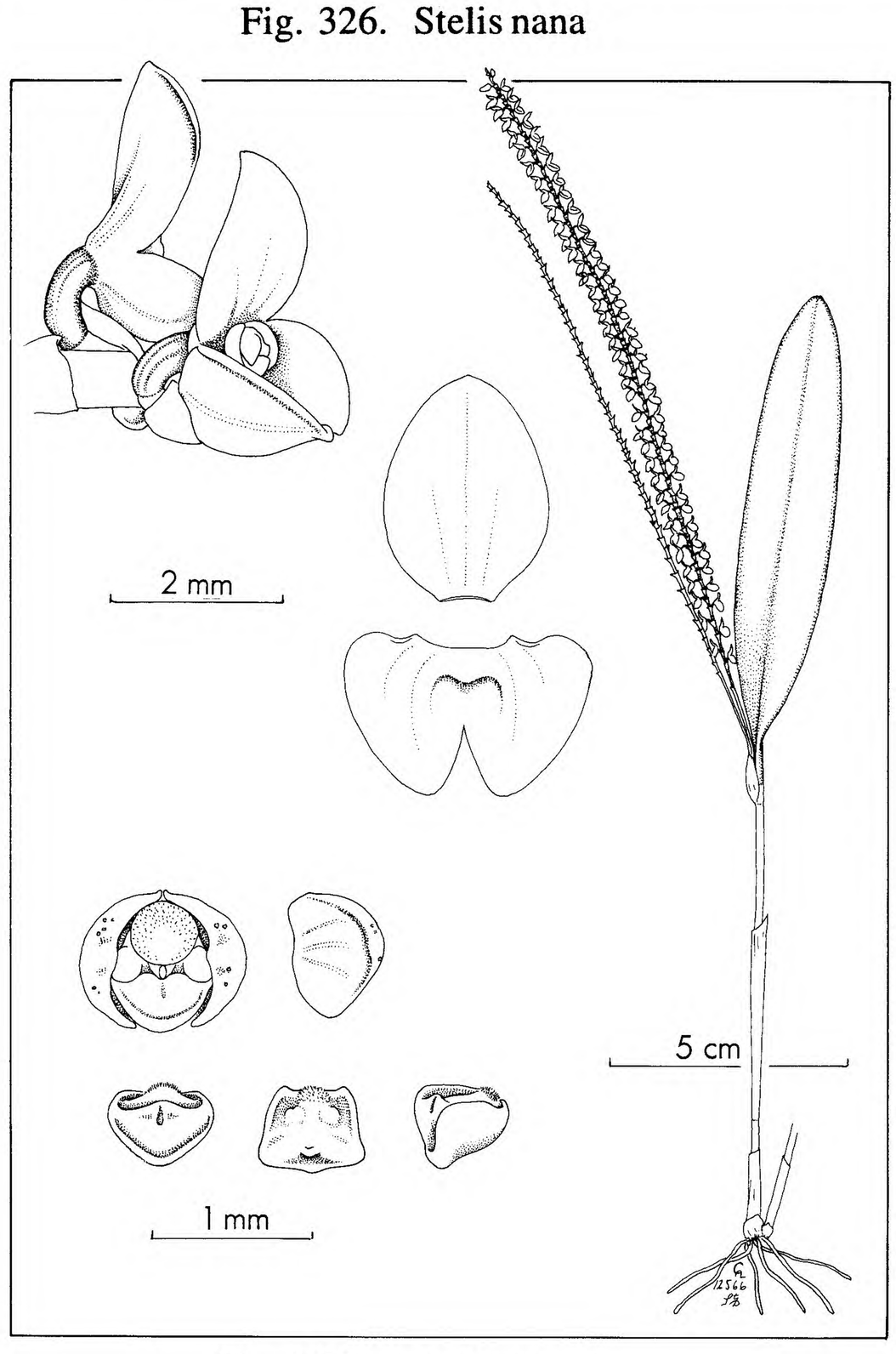


Fig. 327a. Stelis nutans
(Stelis manabina)

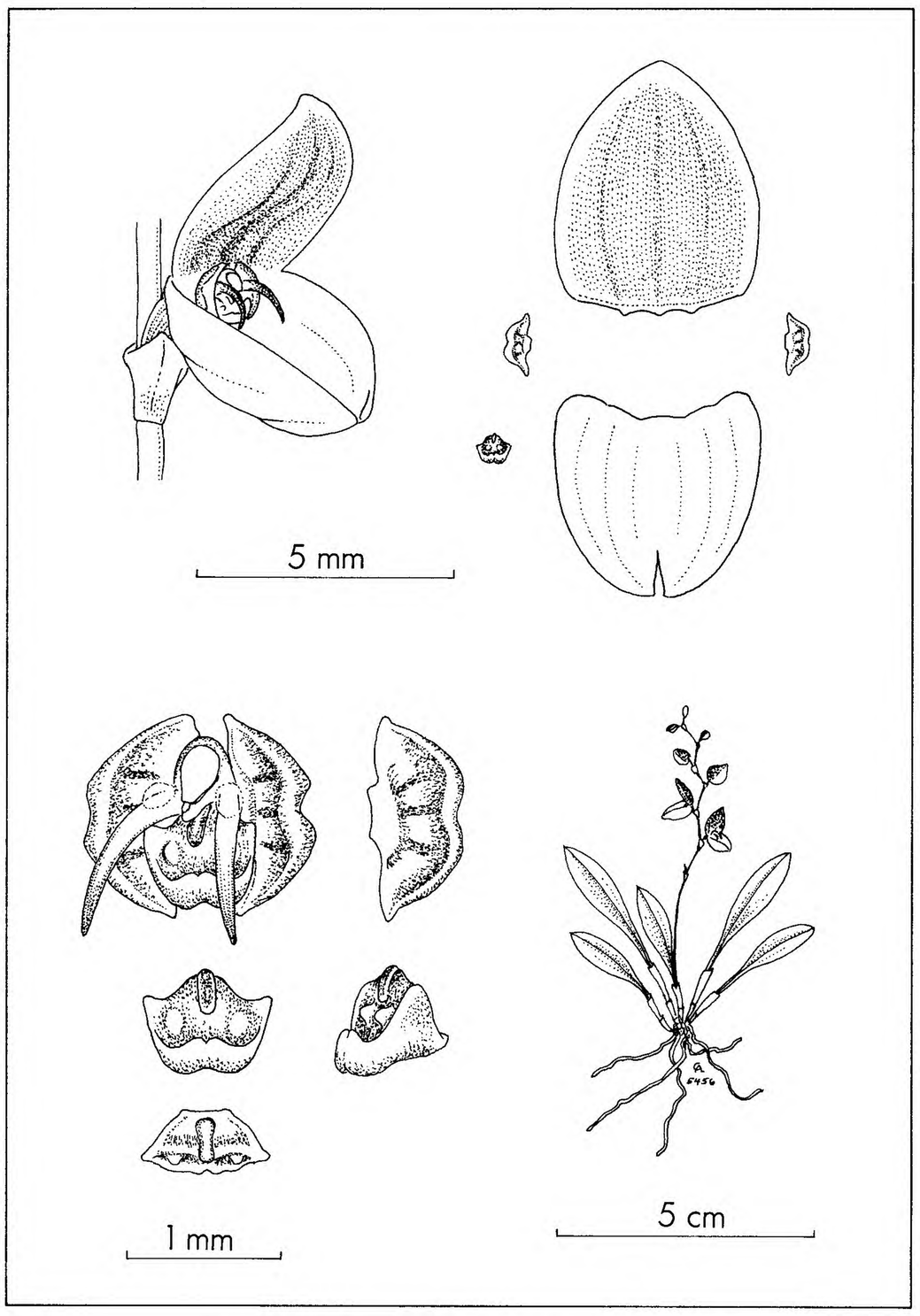


Fig. 328. Stelis odobenella

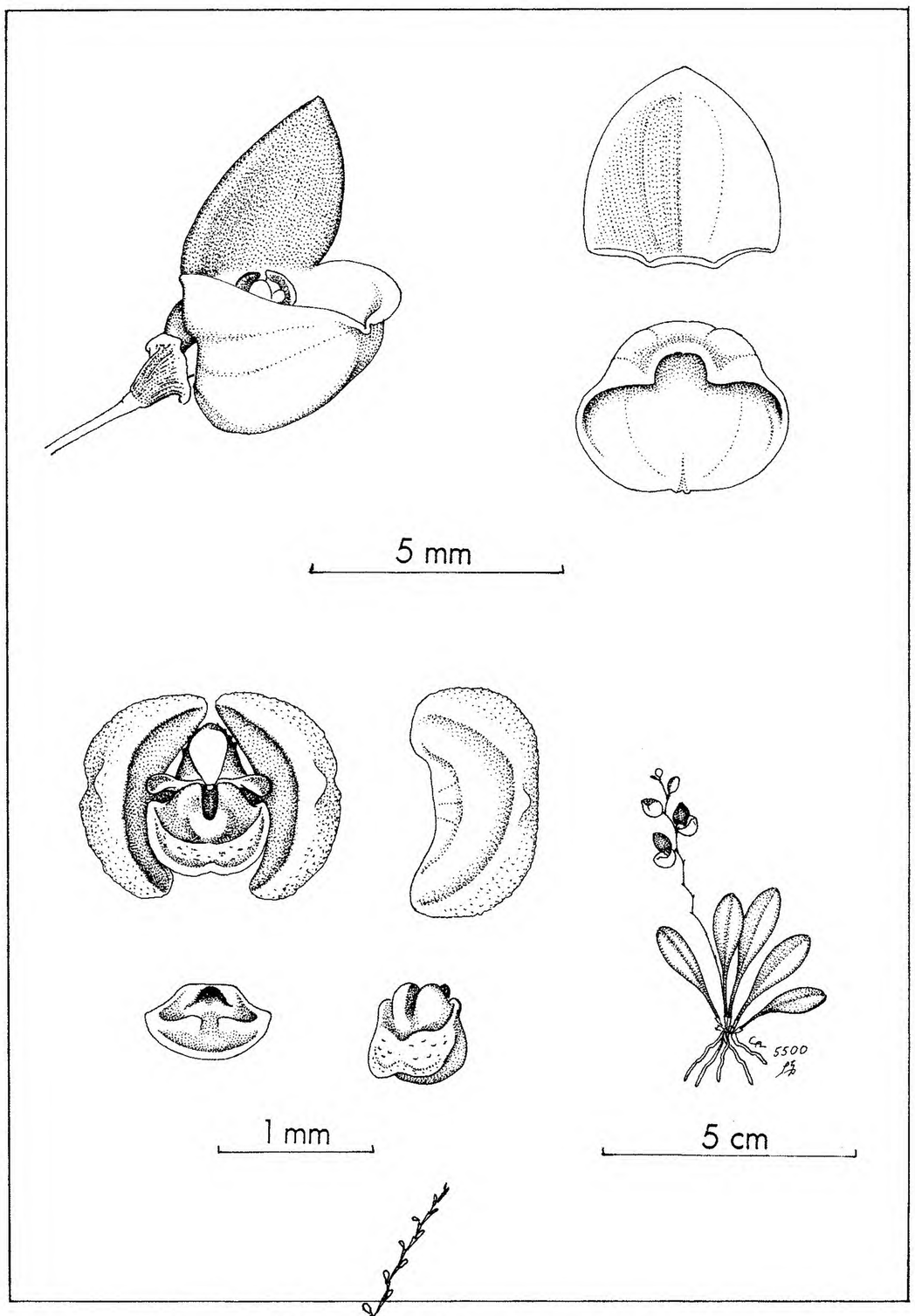


Fig. 329. Stelis opercularis

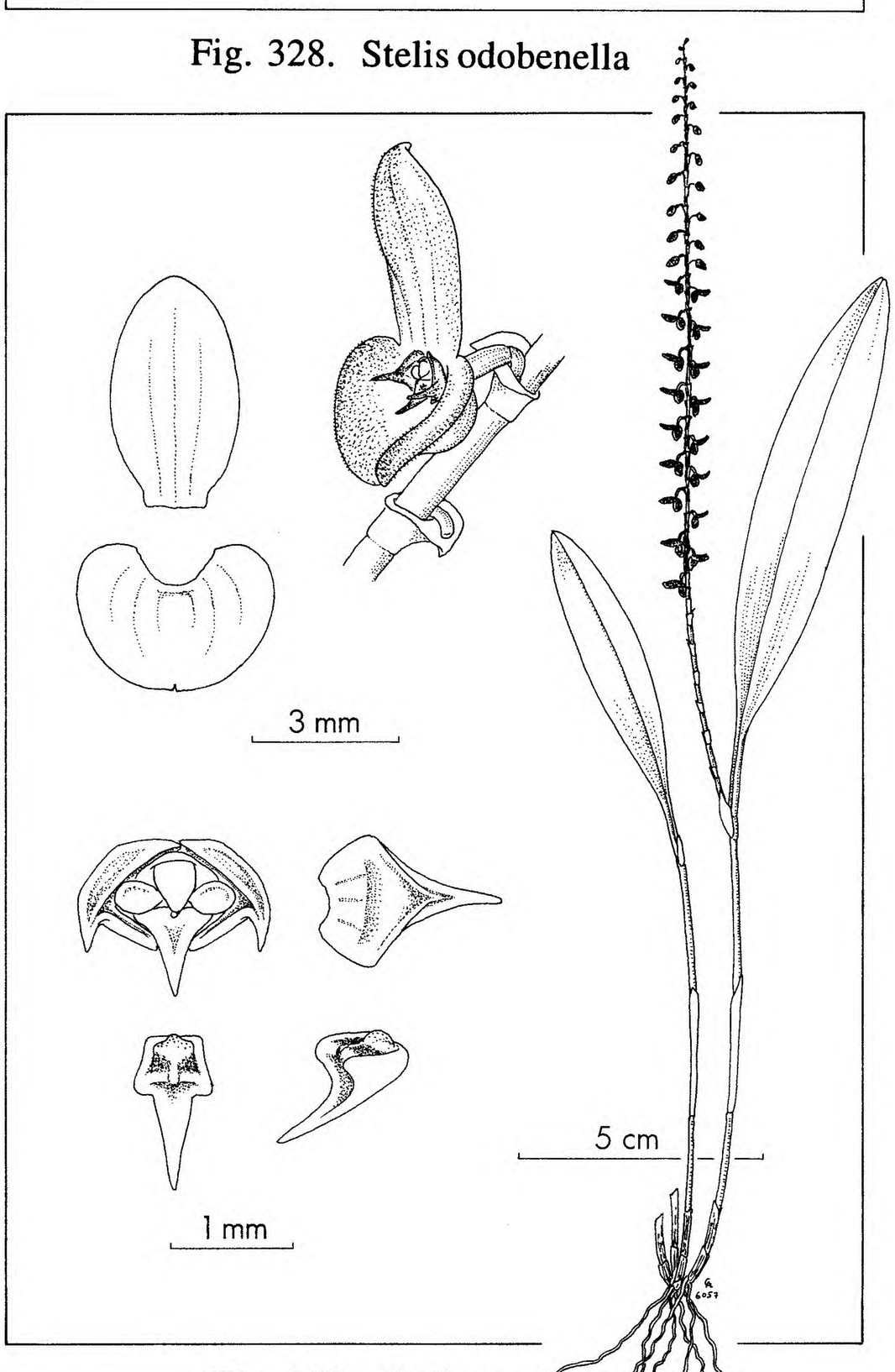


Fig. 330. Stelis pardipes

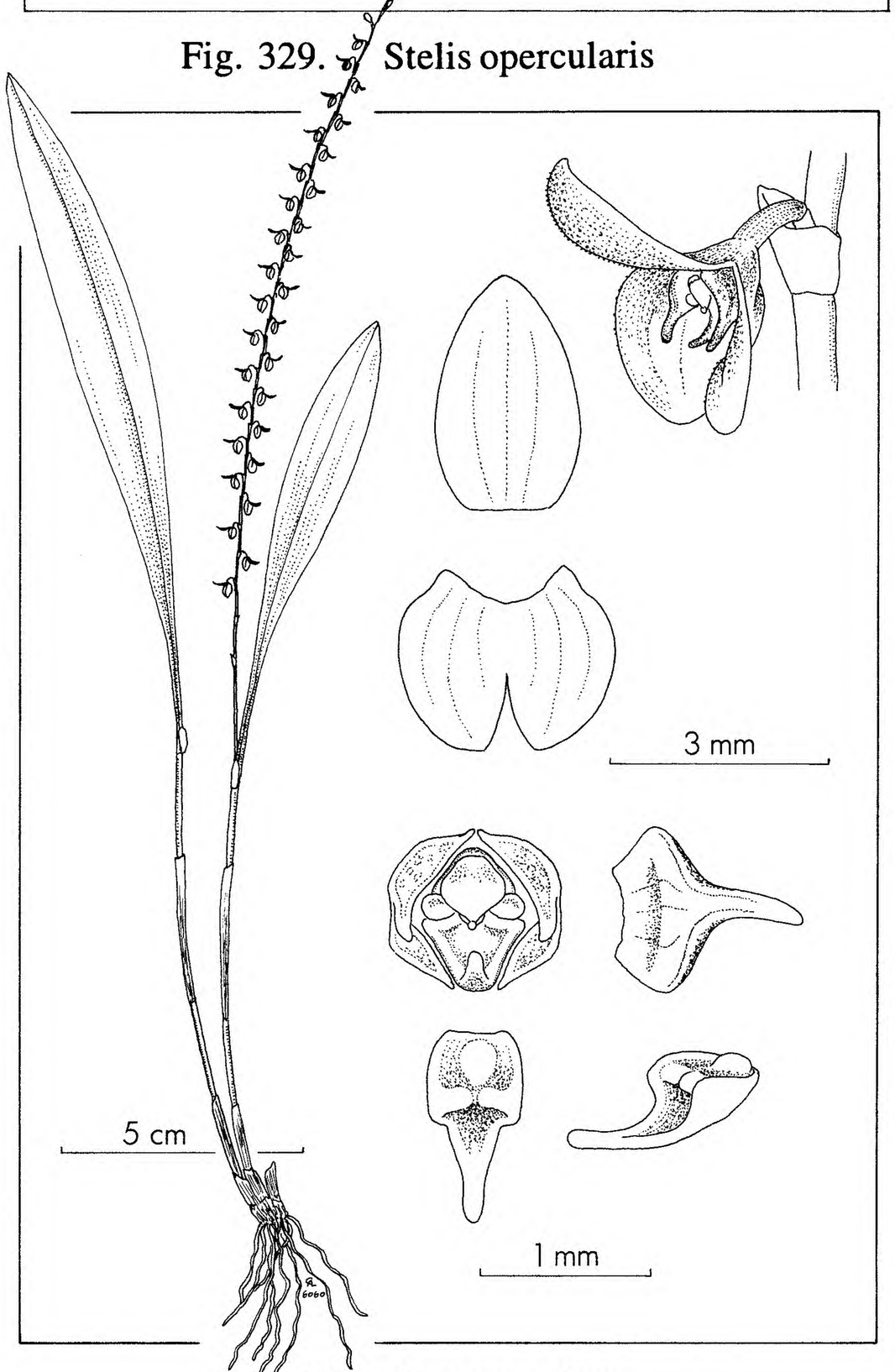


Fig. 330a. Stelis pardipes

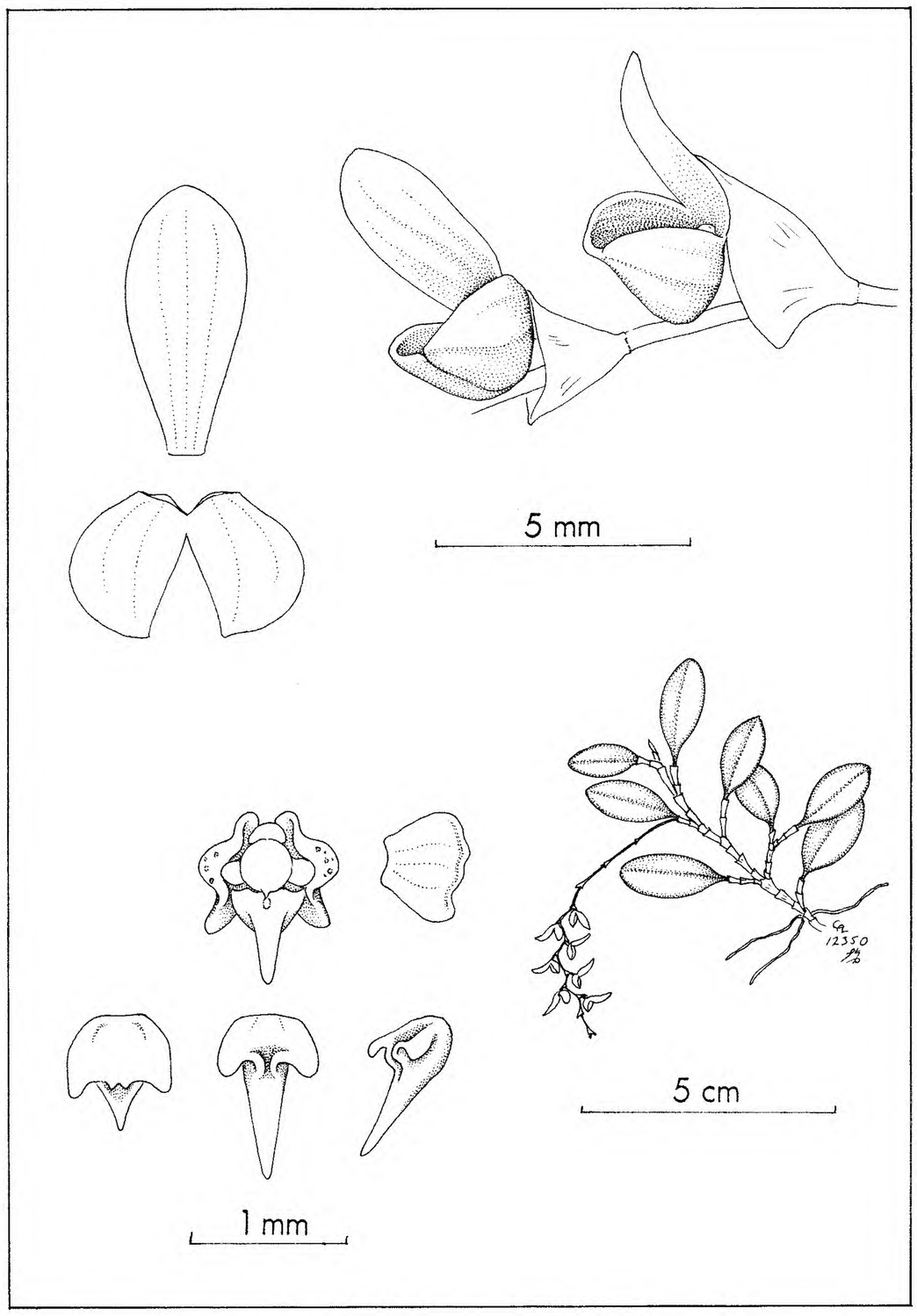


Fig. 331. Stelis piperina

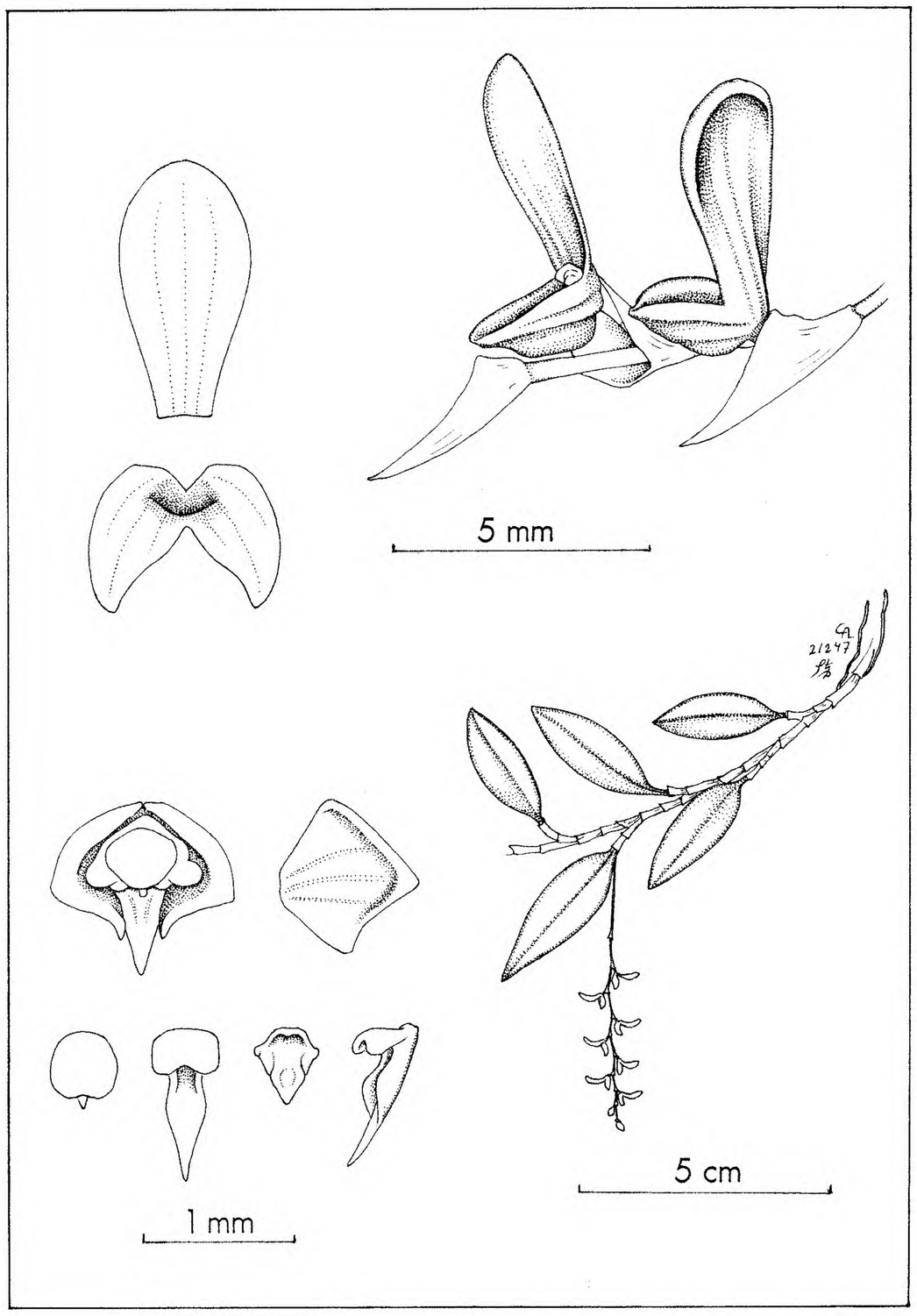


Fig. 332. Stelis pollex

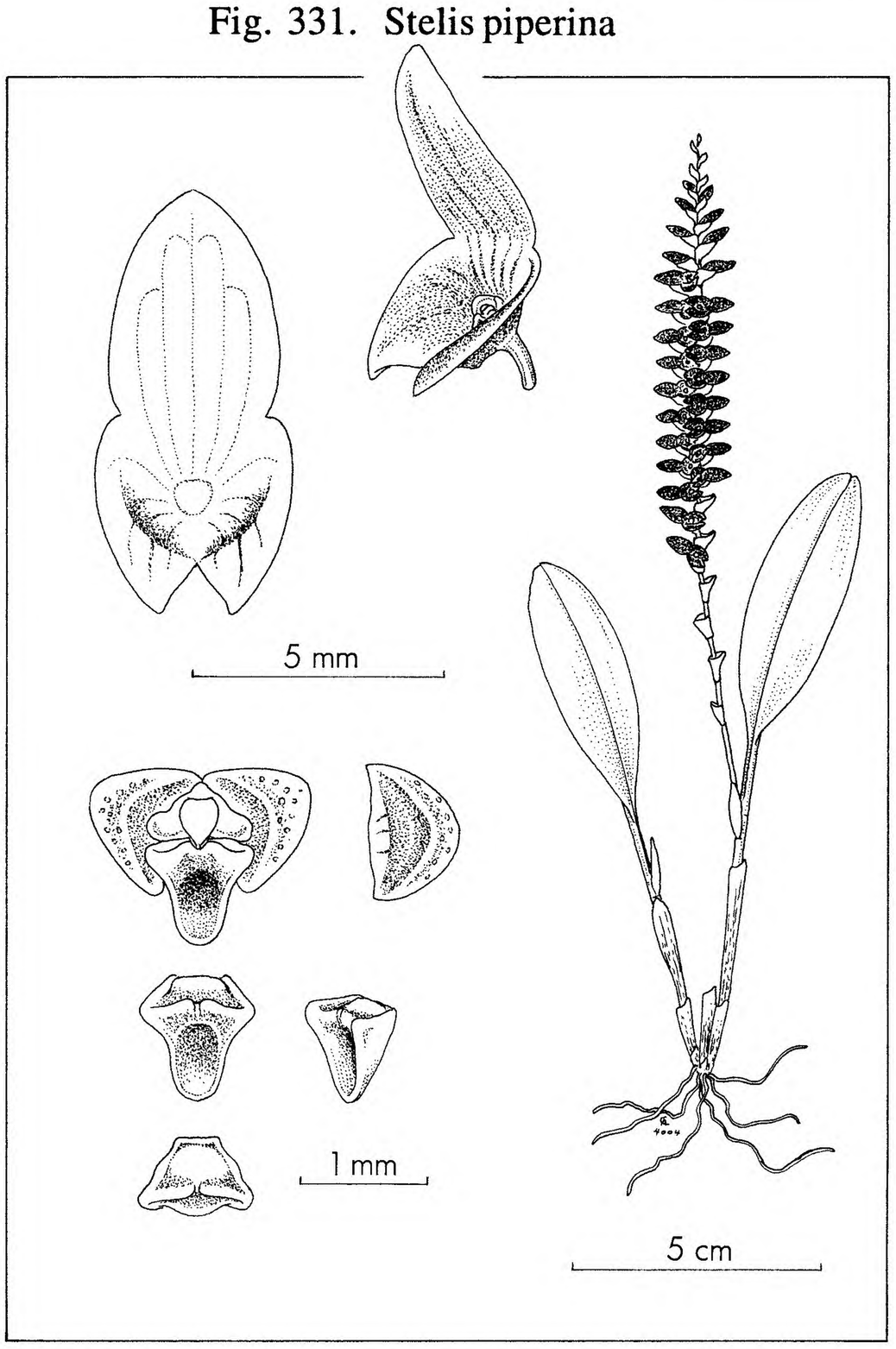


Fig. 333. Stelis pristis

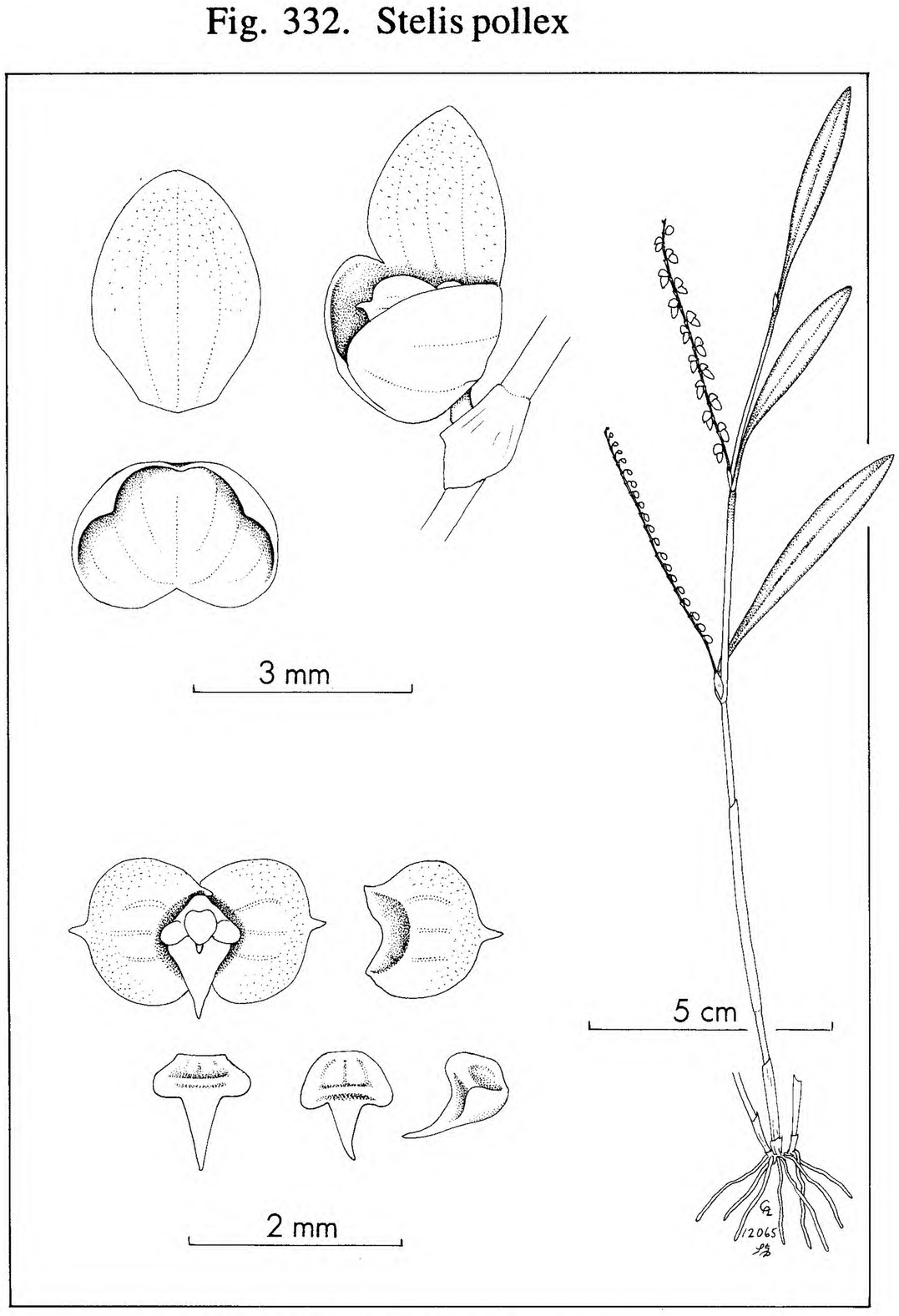


Fig. 334. Stelis pugiunculi

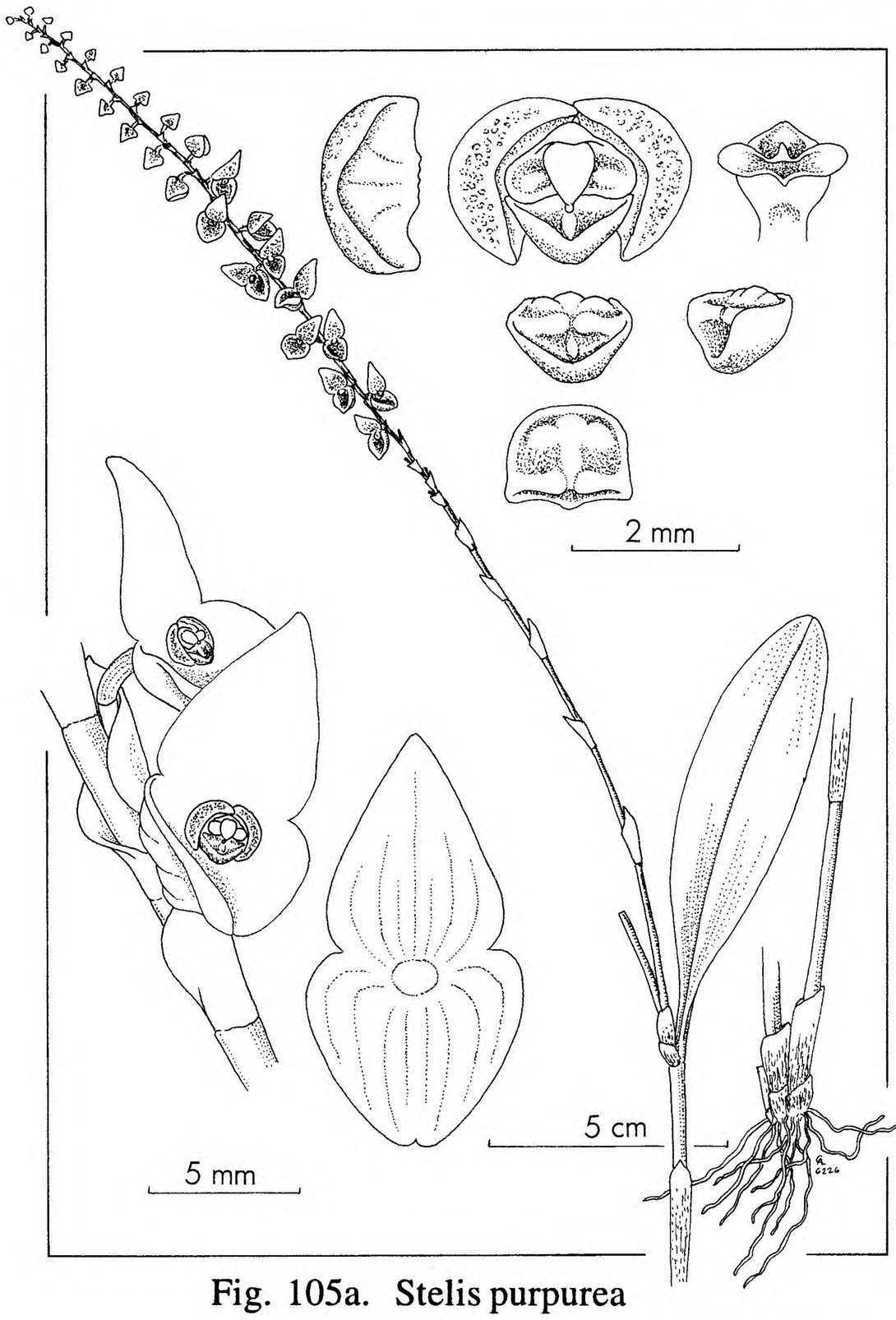


Fig. 105a. Stelis purpurea

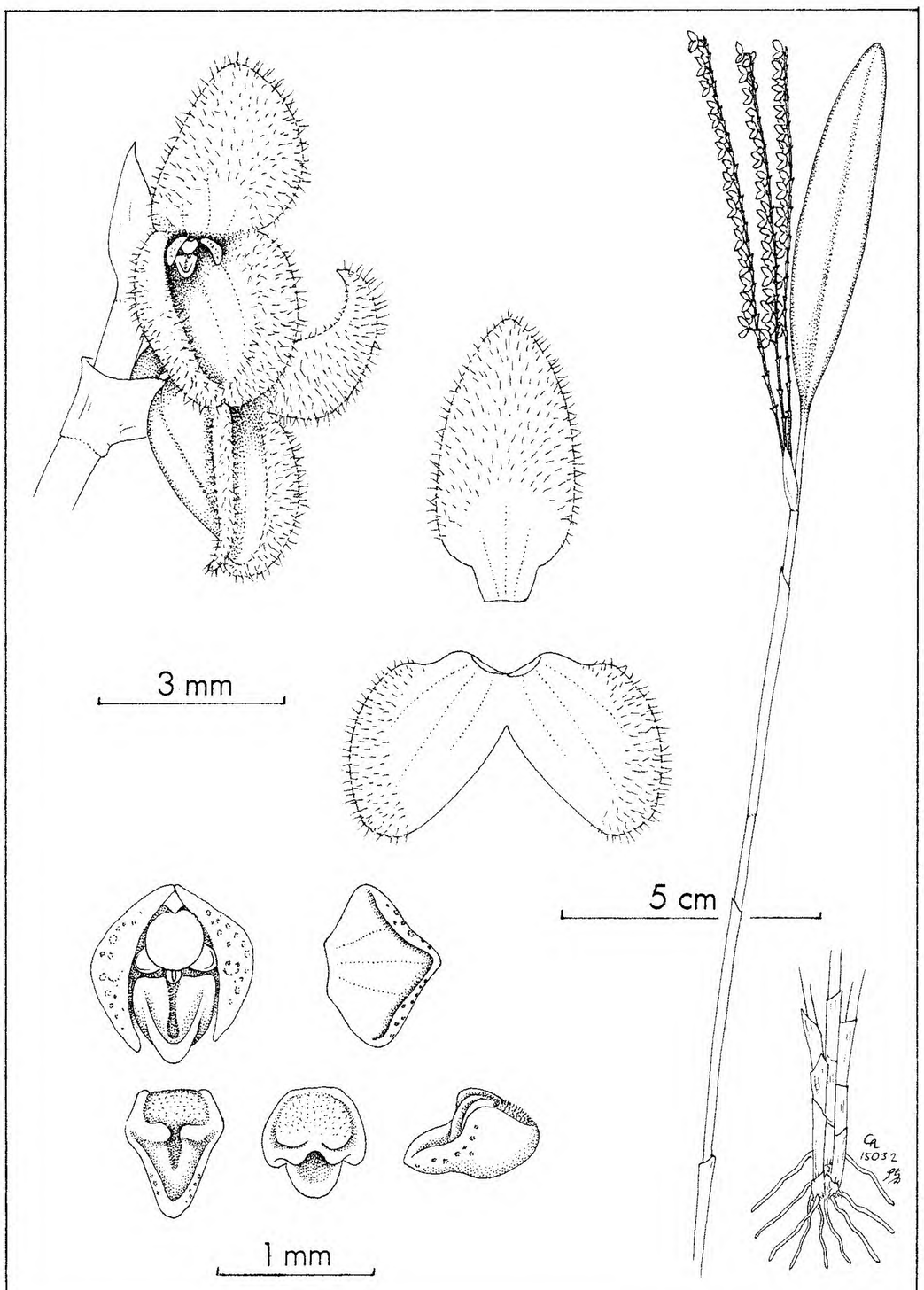


Fig. 335. Stelis scopulosa

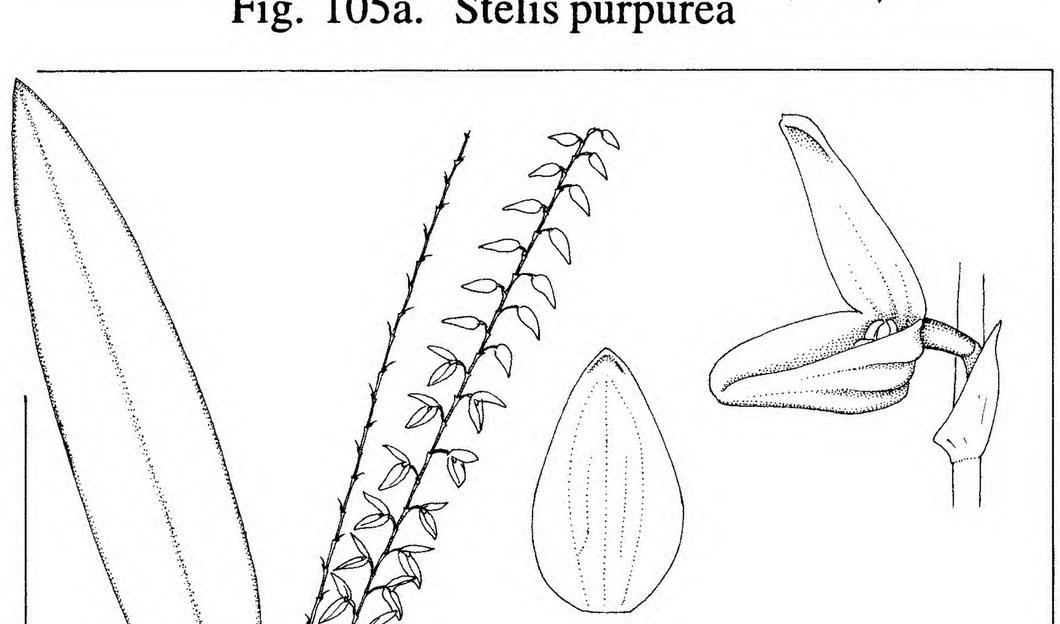


Fig. 336. Stelis singularis

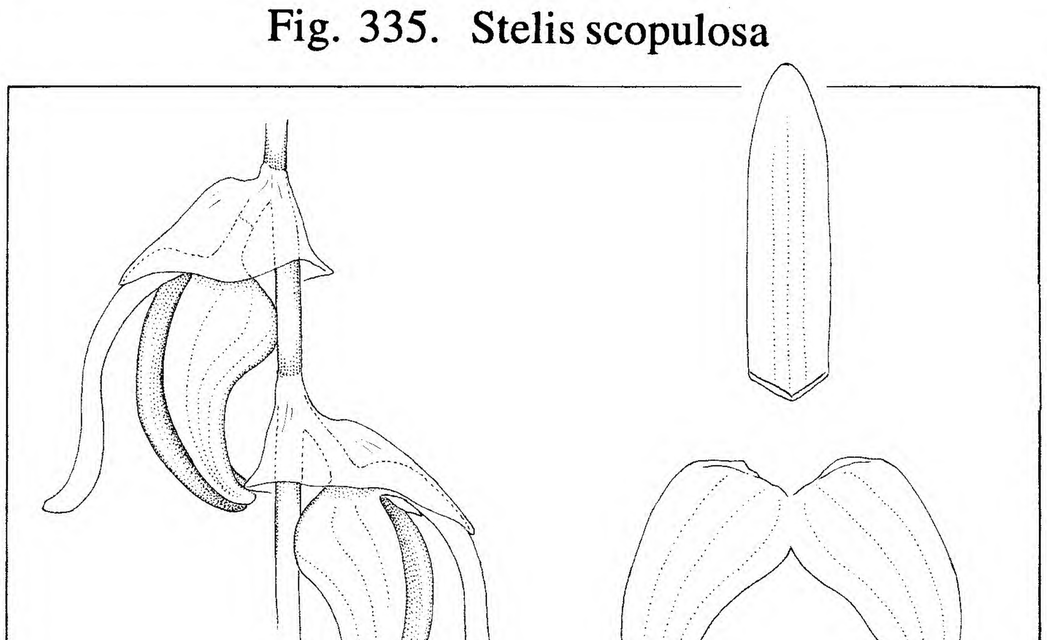


Fig. 337. Stelis stiriosa

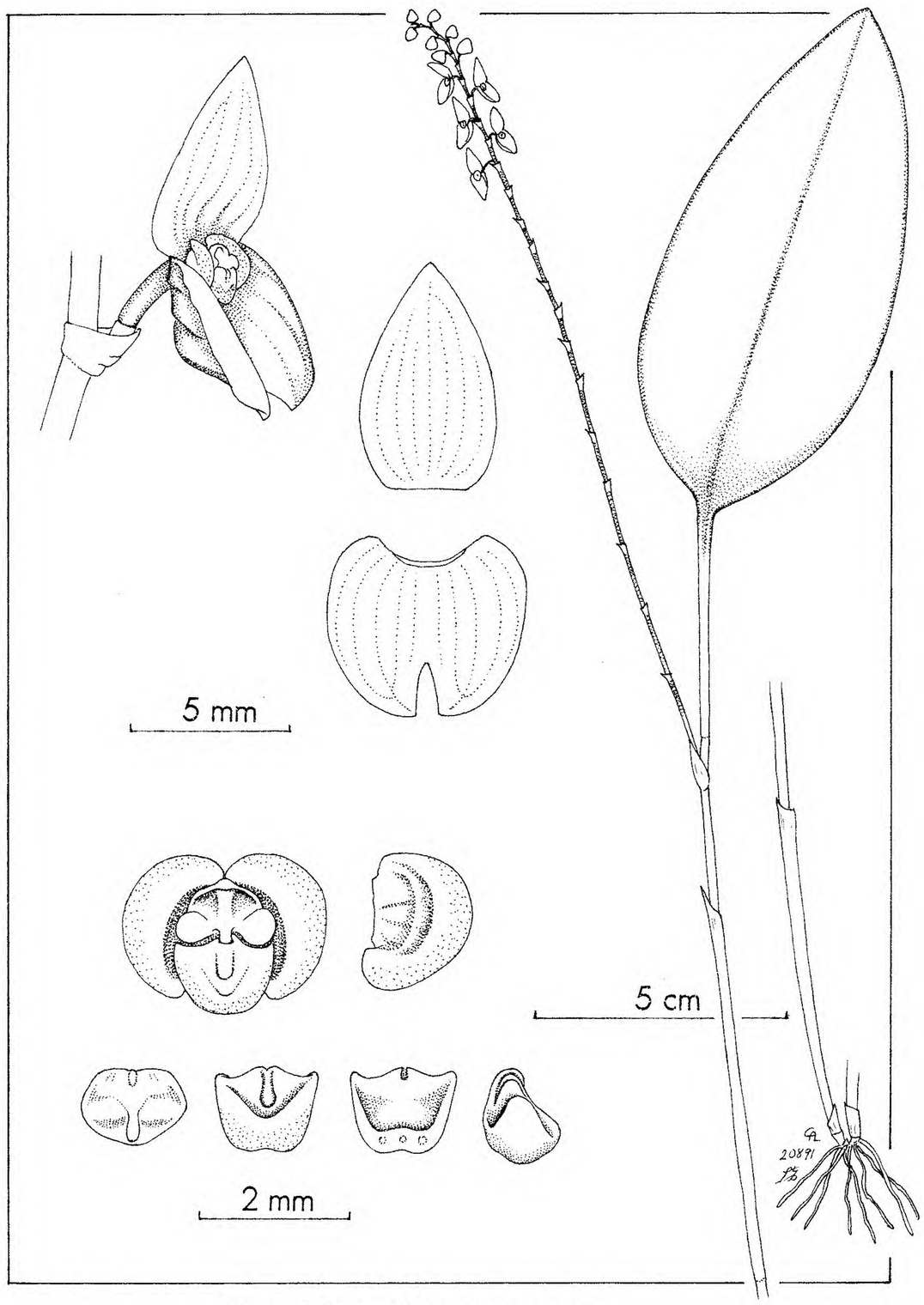


Fig. 338. Stelis tobarii

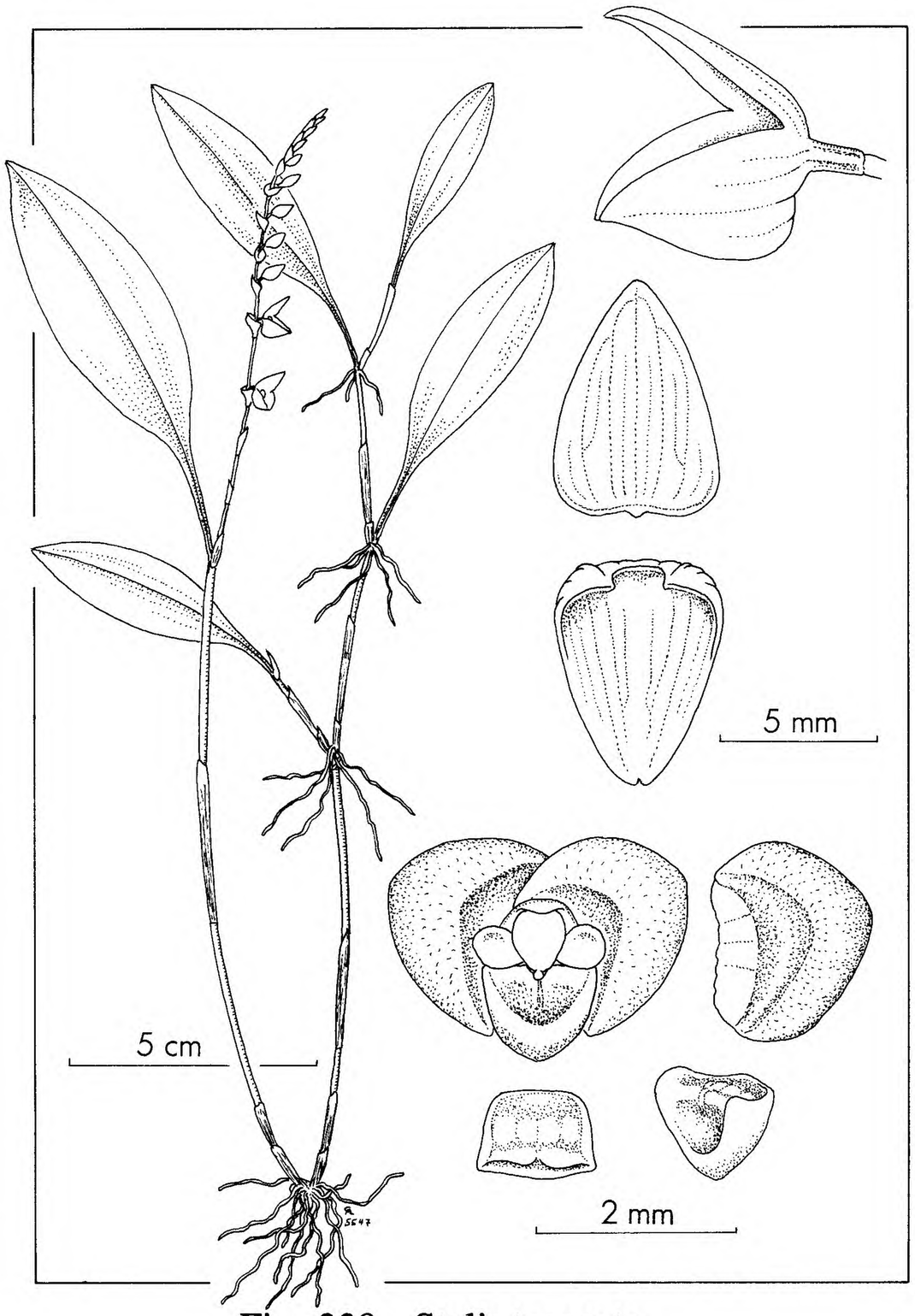


Fig. 339. Stelis truncata

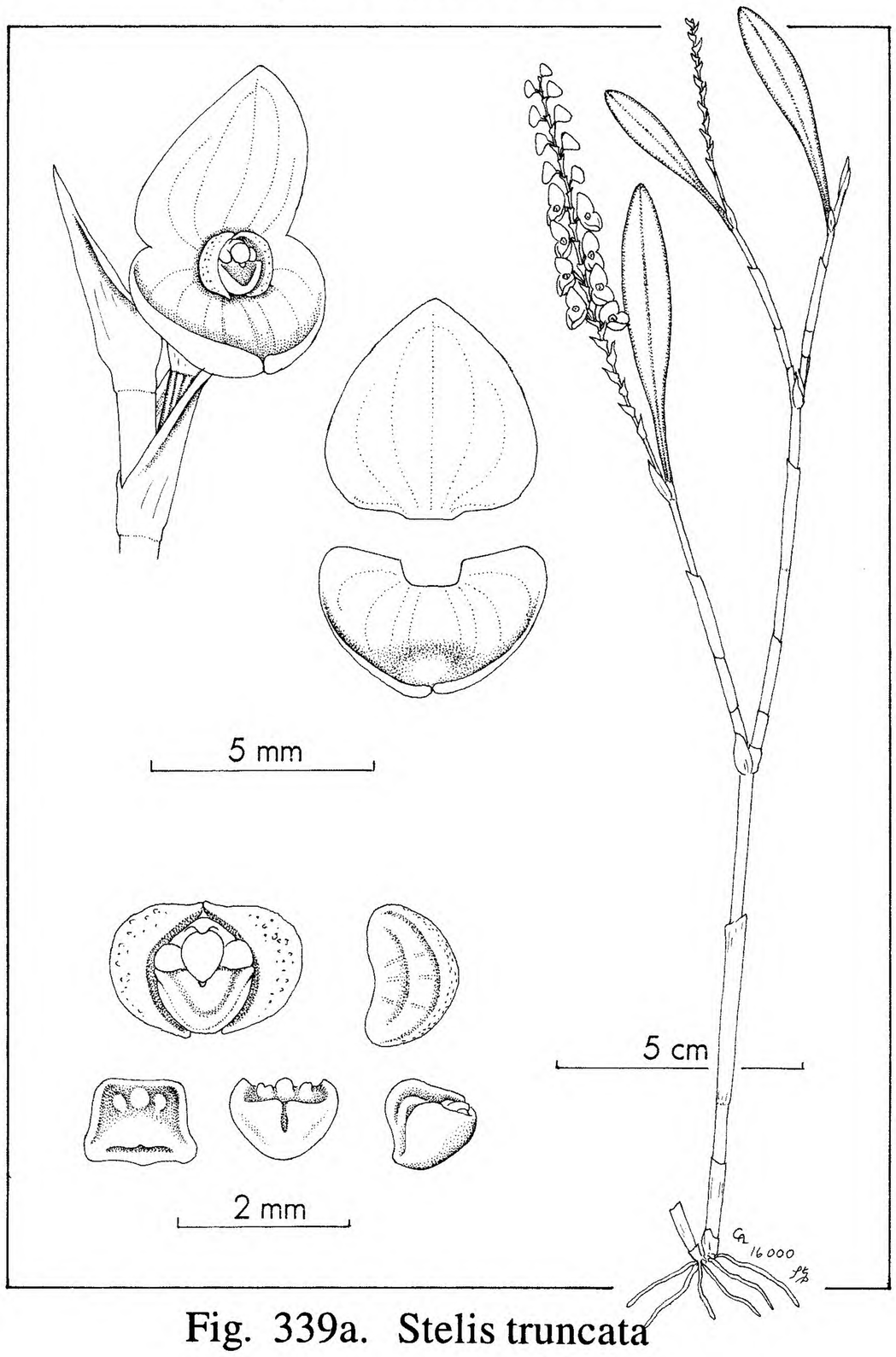


Fig. 339a. Stelis truncata

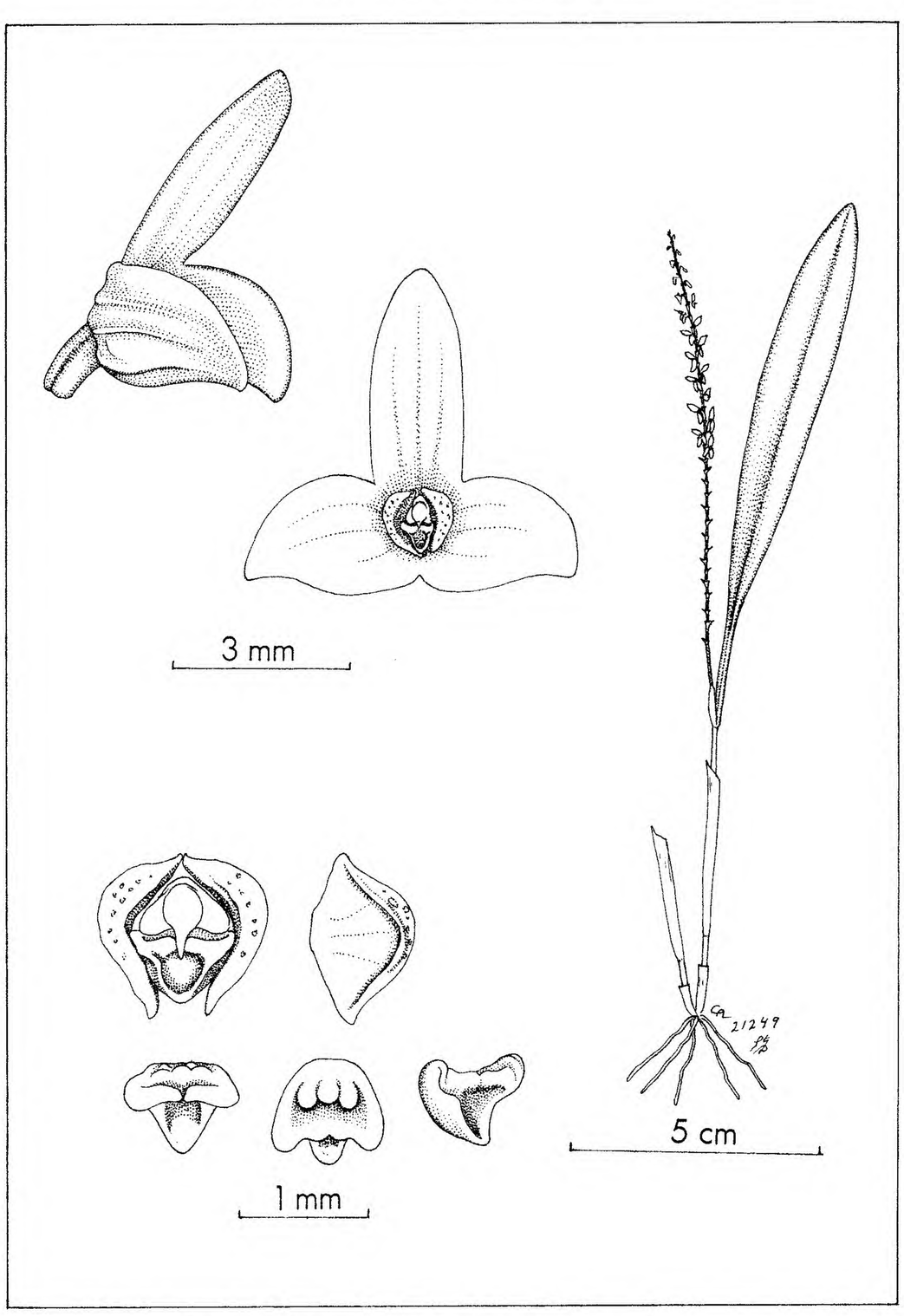


Fig. 340. Stelis valladolidensis

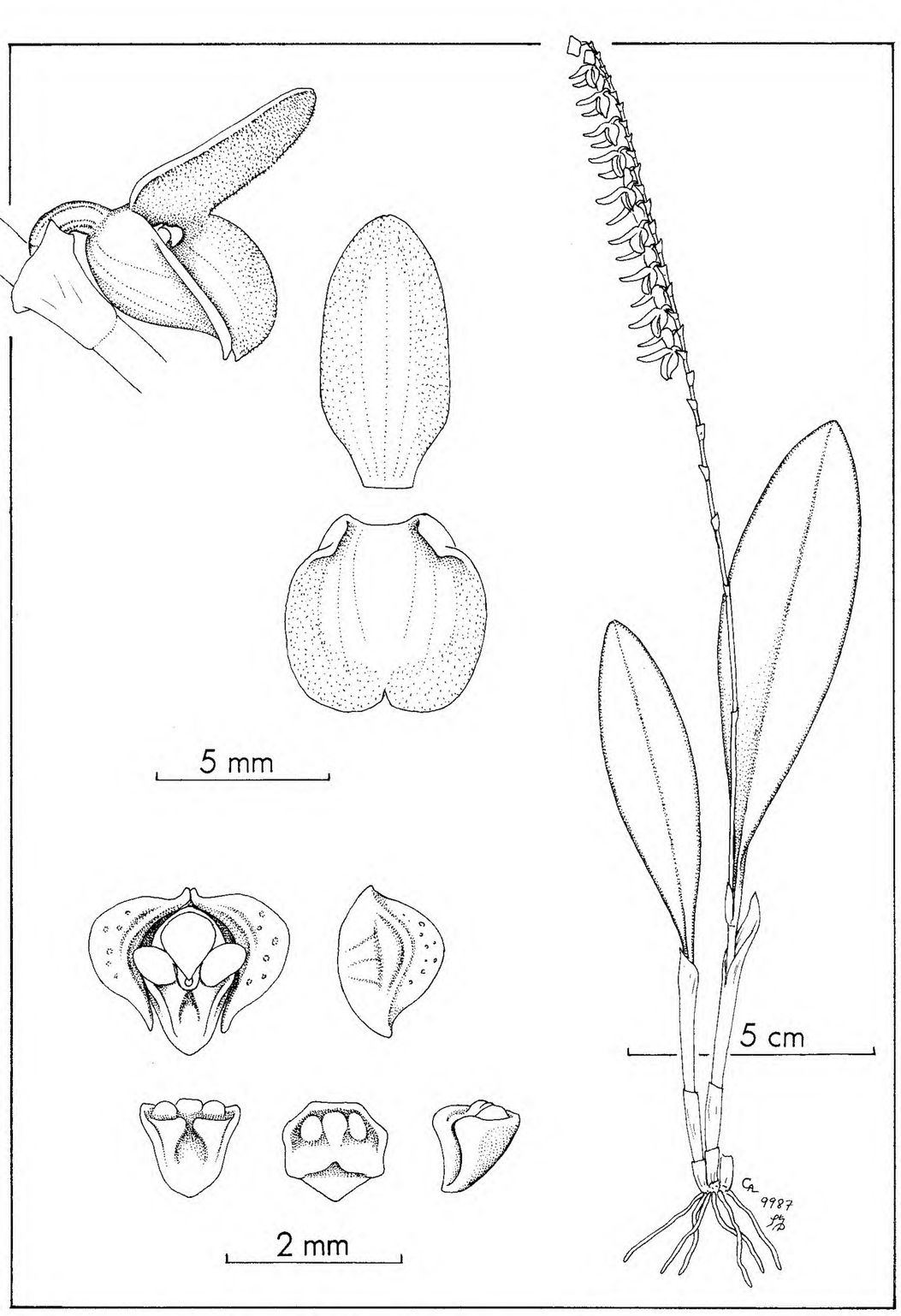


Fig. 341. Stelis velutina

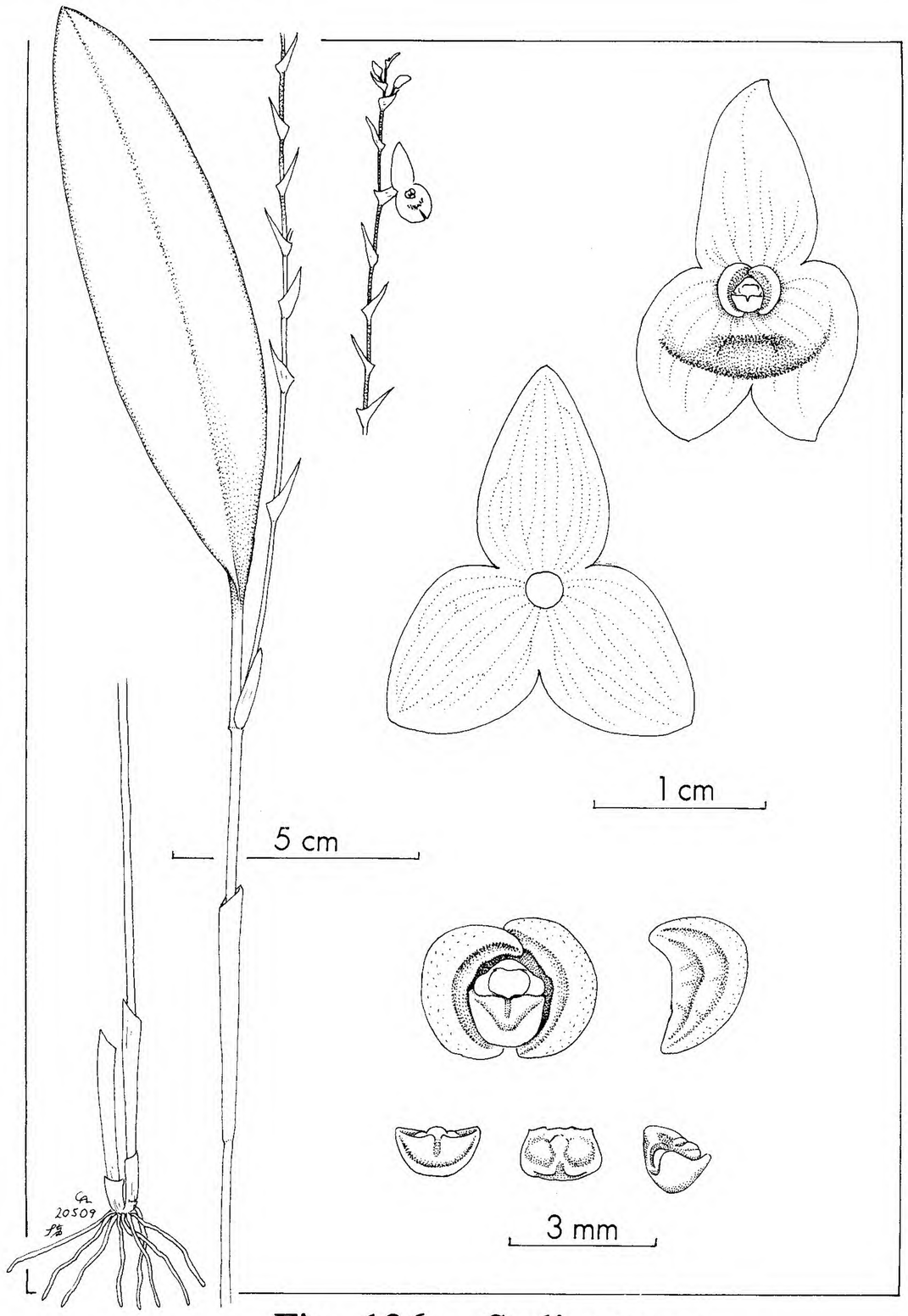


Fig. 126a. Stelis venosa

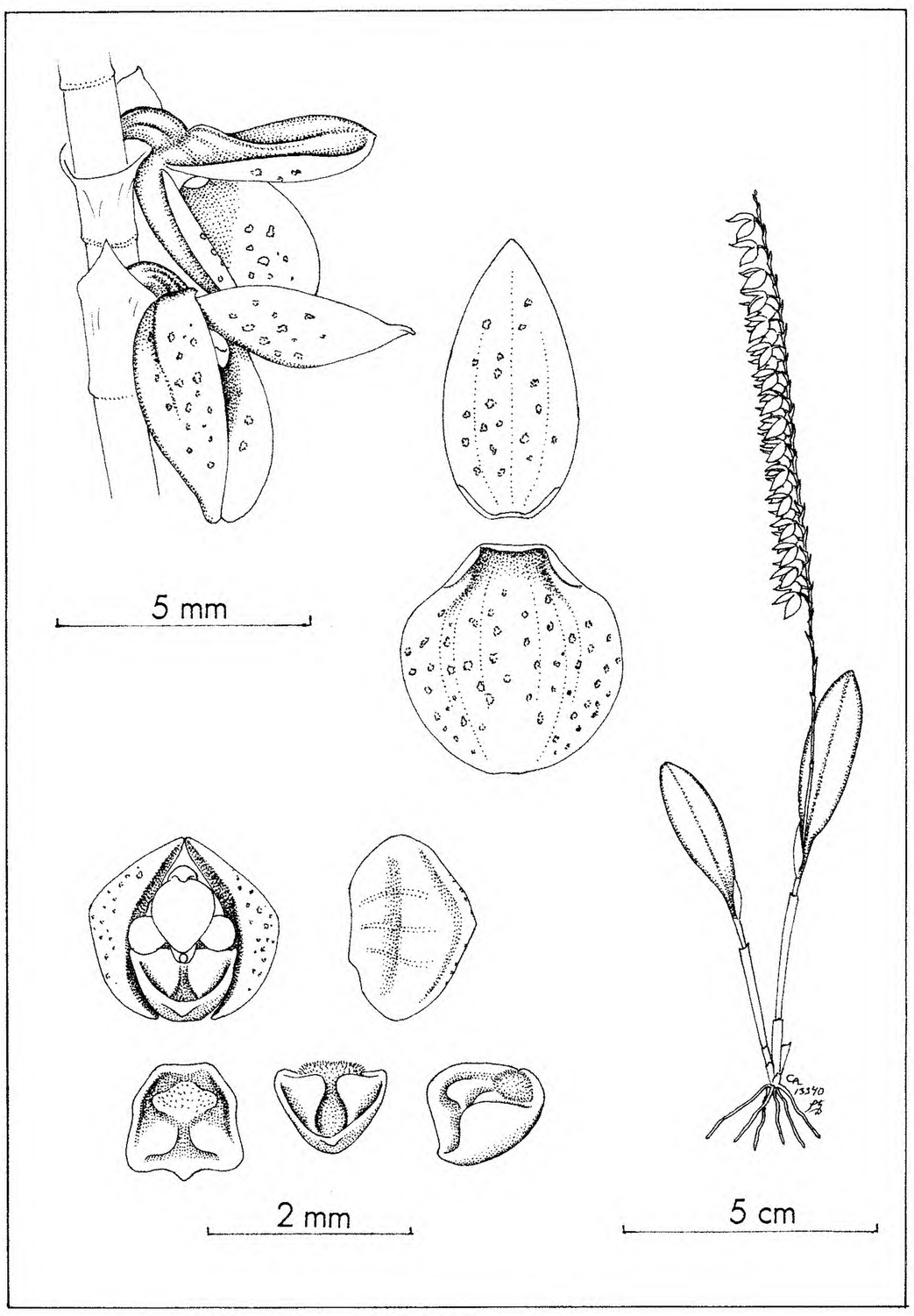


Fig. 342. Stelis vulcani

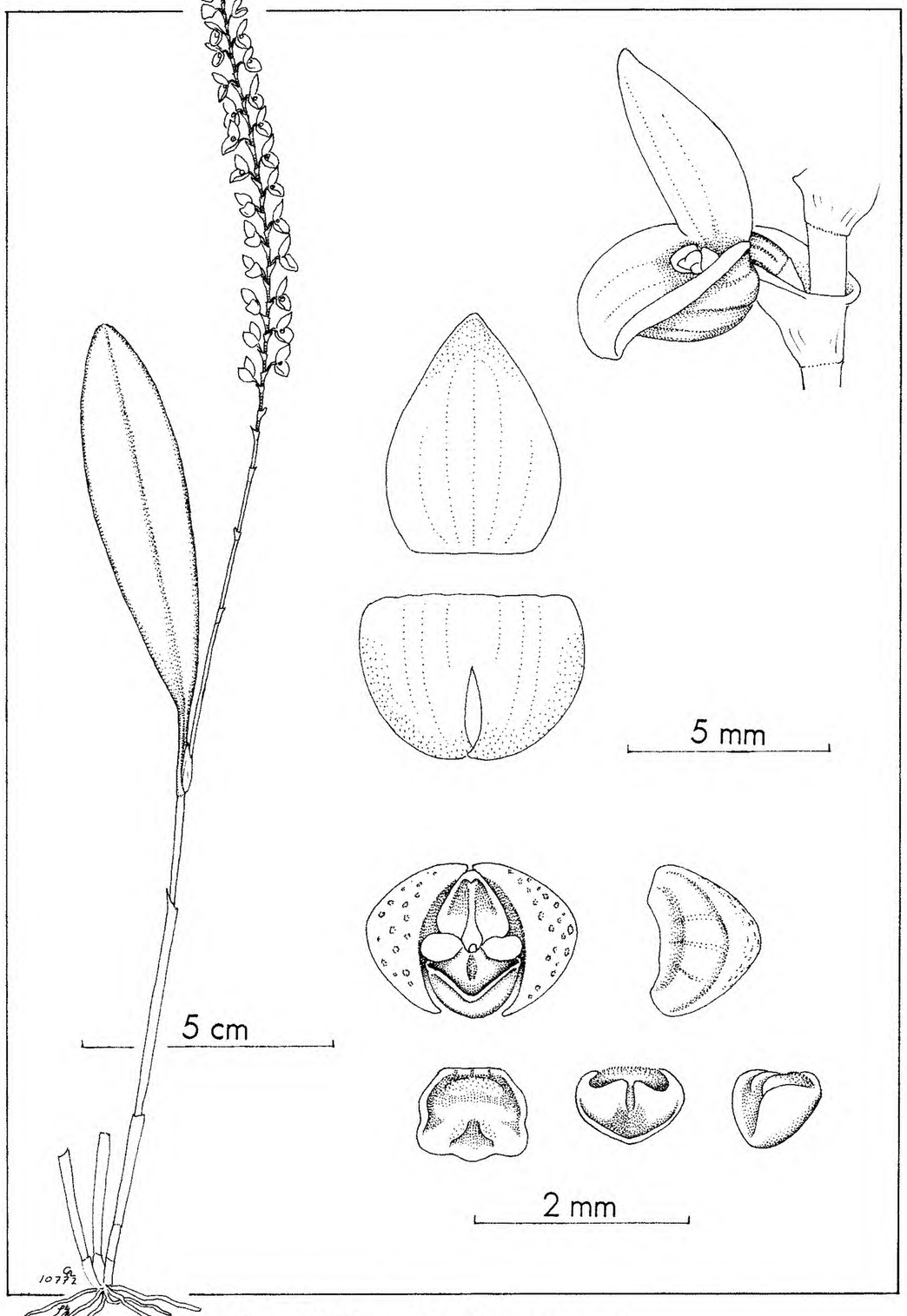


Fig. 342a. Stelis vulcani

2. *STELIS* Sect. *NEXIPOUS*

Stelis sect. *Nexipous* (Garay) Luer, Monogr. Syst. Bot. Missouri Bot. Gard. 15: 62, 1986.

Bas.: *Stelis* subgen. *Nexipous* Garay, Bot. Mus, Leafl. Harvard Univ. 27 (7-9): 168-259, 1980.
Type: *Stelis nexipous* Garay.

Stelis sect. *Nexipous* and *Stelis* sect. *Stelis* are distinguished from *Stelis* sect. *Humboldtia* by lateral sepals that are not connate into a synsepal. The section is recognized by a caespitose habit, usually medium in size for the genus, and a racemose inflorescence. The sepals are either glabrous or microscopically pubescent, and not membranous. The lateral sepals are free from each other, either completely or to near the base. The degree of connation to the dorsal sepal varies, but more deeply than to themselves, often markedly so. The petals are fleshy and overlain by expanded stigmatic lobes. The lips are modifications of type-B.

Sixteen of the 18 species recognized are endemic in Ecuador. *Stelis genychila* Garay occurs also in Colombia, and *S. juninensis* Kraenzl. occurs also in Peru. They are listed below, followed by their appearance within the *Icones Pleurothallidinarum* series.

Stelis aperta Garay, *Icones Pleuroth.* 30, Part Four, Fig. 343., 343a.
Stelis bovilinguis Luer & Hirtz, *Icones Pleuroth.* 26, Part Two, Fig. 102.
Stelis encephalota Luer & Hirtz, *Icones Pleuroth.* 26, Part Two, Fig. 206.
Stelis genychila Garay, *Icones Pleuroth.* 30, Part Four, Fig. 344.
Stelis juninensis Kraenzl., *Icones Pleuroth.* 30. Part Four, Fig. 345.
Stelis laudabilis Luer & Hirtz, *Icones Pleuroth.* 29, Part Three, Fig. 207.
Stelis lynniana Luer, *Icones Pleuroth.* 29, Part Three, Fig. 208.
Stelis matula Luer & Hirtz, *Icones Pleuroth.* 24, Part One, Fig. 3.
Stelis mnemonica Luer & Hirtz, *Icones Pleuroth.* 29, Part Three, Fig. 209.
Stelis nexipous Garay, *Icones Pleuroth.* 30, Part Four, Fig. 346., 346a.
Stelis orecta Luer & Hirtz, *Icones Pleuroth.* 29, Part Three, Fig. 210.
Stelis pactensis Luer & Hirtz, *Icones Pleuroth.* 29, Part Three, Fig. 211.
Stelis picea Luer & Hirtz, *Icones Pleuroth.* 29, Part Three, Fig. 212.
Stelis reniformis Luer & Hirtz, *Icones Pleuroth.* 26, Part Two, Fig. 103.
Stelis saurocephala Luer & Hirtz, *Icones Pleuroth.* 26, Part Two, Fig. 104.
Stelis steganopus Garay, *Icones Pleuroth.* 30, Part Four, Fig. 347.
Stelis uncifera Luer & Hirtz, *Icones Pleuroth.* 29, Part Three, Fig. 213.
Stelis zelenkoi Luer & Hirtz, *Icones Pleuroth.* 24, Part One, Fig. 4.

KEY V: The species of *STELIS* sect. *NEXIPOUS*

1 Dorsal sepal deeply inflated, subspherical; lateral sepals nearly free, recurved..... ..... *S. encephalota*
1' Dorsal sepal not deeply inflated
2 Lateral sepals divided, inflated and connivent with the dorsal sepal to their tips..... ..... *S. matula*
2' Lateral sepals not inflated and connivent with the dorsal sepal
3 Lateral sepals deeply connate to the dorsal sepal
4 Lateral sepals connate at least half their length to the dorsal sepal
5 Raceme much longer than the leaf; lip subcircular with the callus cleft..... ..... *S. nexipous*
5' Raceme shorter than, to about as long as the leaf; lip obovate, obtuse with the callus not cleft..... *S. steganopus*
4' Lateral sepals not connate at least half their length to the dorsal sepal
6 Petals proportionately large, more than twice the length of the lip....*S. genychila*
6' Petals not more than twice longer than the lip
7 Lip uncinate, much longer than wide..... *S. uncifera*
7' Lip not uncinate and longer than wide
8 Petals smaller than the lip
9 Lip with a concave, rounded, apical lobe..... *S. bovilinguis*
9' Lip not with a concave, rounded, apical lobe..... *S. aperta*
8' Petals not smaller than the lip
10 Sepals convex basally around the central apparatus
11 Sepals acuminate, carinate, with thickened margins..... *S. saurocephala*
11' Sepals not acuminate with thickened margins..... *S. laudabilis*
10' Sepals not convex around the central apparatus..... *S. zelenkoi*
3' Lateral sepals nearly free or shallowly connate to the dorsal sepal
12 Lateral sepals acute, obliquely decurved..... *S. juninensis*
12' Lateral sepals not acute and obliquely decurved
13 Lateral sepals acute, apiculate; lip with the apex broadly rounded..... *S. orecta*
13' Lateral sepals acute to obtuse; lip with the apex triangular
14 Lateral sepals diverging about 90°..... *S. lynniana*
14' Lateral sepals diverging about 180°
15 Sepals convex basally surrounding the central apparatus
16 Sepals narrowly elliptical; lip acute..... *S. mnemonica*
16' Sepals broadly elliptical; lip obtuse..... *S. pactensis*
15' Sepals not convex basally surrounding the central apparatus
17 Petals reniform with rounded margins..... *S. reniformis*
17' Petals subquadrate with distinct margins..... *S. picea*

343., 343a. **Stelis aperta** Garay, Bot. Mus. Leafl. Harvard Univ. 27: 182, 1980.

Ety.: From the Latin *apertus*, "opened," referring to the expanded flower.

Plant medium in size to large, epiphytic, caespitose; roots slender. Ramicauls erect, stout, 6-12 cm long, enclosed by a loose, tubular sheath from below the middle and 2-3 other sheaths at the base. **Leaf** erect, coriaceous, elliptical-oblong, subacute to obtuse, petiolate, 5-12 cm long, 1.5-2 cm wide, contracted below into a petiole 1-1.5 cm long. **Inflorescence** an erect, subcongested, distichous, many-flowered raceme with several to many flowers open simultaneously, 8-30 cm long including the peduncle 4-5 cm long, subtended by a spathe 1 cm long, from an annulus below the apex of the ramicaul; floral bracts oblique, acute, 4-5 mm long; pedicels 2 mm long; ovary 2.5 mm long; **sepals** purple, glabrous externally, sparsely short pubescent within, the dorsal sepal obovate, obtuse, 3.5-4 mm long, 3.5-4 mm wide, 3-veined, connate for 2 mm to the lateral sepals to form a 3-lobed, expanded, flabellate flower, the lateral sepals obliquely ovate, obtuse, 3.5-5 mm long, 3.5-4 mm wide, 3-veined, connate basally for 0.5 mm to each other; **petals** purple, transversely cuneate-oblong, 0.75 mm long, 1 mm wide, broadly rounded at the apex, shallowly concave; **lip** purple, broadly elliptical-subcircular, 1.5-2 mm long, 1.25-2 mm wide, 0.5 mm deep, the apex thickened, rounded, slightly incurved, shallowly concave centrally, with a pair of erect, adjacent, tall lamellae below the middle, the base truncate, hinged to the base of the column; **column** stout, 0.5 mm long, 1 mm wide, the foot obsolescent, the anther and the bilobed stigma apical.

Without locality, *F.C. Lehmann 21* (Holotype of *S. aperta*: W; Isotypes: AMES: K).
ECUADOR: **Napo**: north of Baeza, alt. 2000 m, 10 Aug. 1978, *C. Luer, J. Luer & A. Hirtz 3208* (SEL); south of Baeza toward Cosanga, alt. 1800 m, 14 Apr. 1985, *C. Luer, J. Luer, A. Hirtz & W. Flores 11274* (MO); between Papallacta and Baeza, alt. 2100 m, 20 Feb. 1982, *C. Luer & A. Hirtz 6851* (SEL); near Baeza, alt. 1900 m, 23 Feb. 1982, *C. Luer & A. Hirtz 7006* (SEL).
Pastaza: Madre Tierra, near Puyo, 20 Aug. 1968, *H. Lugo 342* (GB).
Tungurahua: near Baños, 2700 m, 10 July 1967, *C.H. Dodson, N.H. Williams & R. Adams 3760* (SEL).
Loja: army road east of Yangana, alt. 2480 m, 4 Mar. 1982, *C. Luer, A. Andreetta, D. D'Alessandro & S. Dalström 7177* (SEL).
Zamora-Chinchipe: Loja-Zamora road, 1400 m, 29 Sept. 1961, *C.H. Dodson & L.B. Thien 814* (SEL).

This uncommon species is found in southeastern Ecuador; Lehmann's collection described as *S. aperta* Garay bears no data. The plant is characterized by stout ramicauls about as long as oblong leaves that are surpassed by long many-florwered raceme with large floral bracts. The lateral sepals, diverging variably, are connate about half their length to the dorsal sepal, while barely connate to each other at the base. The proportionately small petals are transversely oblong. The lip is round and shallowly concave with a pair of erect lamellae below the middle.

344. **Stelis genychila** Garay, Canad. J. Bot. 34: 354, 1956.

Ety.: From the Greek *genycheila*, "with chin-like lip," referring to the downward sloping base.

Plant small to medium in size, normally epiphytic, densely caespitose; roots slender. Ramicauls erect, slender, fasciculate, 2-8 cm long, enclosed by a loose, tubular sheath and 1-2 others at the base. **Leaf** erect, coriaceous, narrowly elliptical-oblong, subacute to obtuse, 4-10 cm long, including a petiole ca. 1 cm long, the blade 1-2 cm wide, cuneate below into the petiole. **Inflorescence** an erect, congested, simultaneously several- or many-flowered raceme, 6-17 cm long including the peduncle 2-3 cm long, from below the apex of the ramicaul, with a spathe 7-10 mm long; floral bracts tubular, obtuse, 4 mm long; pedicels 2 mm long; ovary 2.5 mm long; flowers nutant; **sepals** tan to purple-brown, expanded, minutely pubescent within, broadly ovate, obtuse, connate below the middle, the dorsal sepal 3 mm long, 3.4 mm wide, 3-veined, the lateral sepals oblique, 3.5 mm long, 3.5 mm wide, 3-(4-)veined; **petals** orange, transversely oblong, rounded on the ends, thickened centrally with thinner margin, 1.3 mm long, 2.6 mm wide, 3-veined; **lip** orange, thick, subquadrate, 0.9 mm long, 1 mm wide, 1.5 mm deep, the apex subacute, shield-shaped, shallowly concave to either side of a thickened center, the margin of the bar with a rounded recess, convex on either side, the dorsum subquadrate, sloping downward, the base broadly truncate, hinged to an elongated base of the column; **column** stout, 1.5 mm long, 1.5 mm wide across expanded stigmatic lobes, the anther and the stigma apical, the lobes of the stigma widely expanded.

COLOMBIA: **Cauca**: near the community of El Tambo, in woods toward Munchique, alt. 2300 m, 24 Oct. 1936, *K. von Sneidern 1095* (Holotype of *S. genychila*: S).
ECUADOR: **Morona-Santiago**: terrestrial on road cut above Campamento Guarumales, alt. 1830 m, 23 May 1991, *C. Luer, J. Luer, A. Andreetta & L. Morocho 15227* (MO); Chiguinda, alt. 1800 m, flowered in cultivation by Ecuagenera, Gualaceo, 2 May 2004, *A. Hirtz 8730* (MO); Macas, collected and cultivaed by Eduardo Sánchez in Cuenca, *A. Hirtz 8856* (MO).
Zamora-Chinchipe: Zamora, alt. 1200 m, flowered in cultivation by Ecuagenera, Gualaceo, 2 Feb. 2002, *A. Hirtz 8025* (MO).

This attractive species was described from a collection from southern Colombia, but is better known from several collections from southeastern Ecuador. The species is distinguished by narrowly oblong leaves and a congested raceme of brownish flowers. The lateral sepals are larger than the dorsal sepal, and they spread 180° opposite each other. Most remarkable is the pair of huge petals that are more than twice as large as the lip. The margins of the petals are thin without marginal thickening. The lip is shield-shaped with the dorsum deflexed beneath the column. The stigmatic lobes of the column overlie the petals,

345. Stelis juninensis Kraenzl., Bot. Jahrb. Syst. 54, Beibl. 117: 21, 1916.

Ety.: Named for the Peruvian province Junín where the species was collected.

Plant large, epiphytic, caespitose; roots slender. Ramicauls slender, erect, 9-10 cm long, enclosed by a loose, tubular sheath on the middle third and 2-3 other sheaths at the base. **Leaf** erect, coriaceous, elliptical, petiolate, with the apex acute to subacute, 10-12 cm long including the petiole 1-1.5 cm long, 1.5-2.2 cm wide, cuneate below into the petiole. **Inflorescence** an erect, secund, subdense, successively multiflowered raceme with many flowers open simultaneously, 12-14 cm long including the peduncle ca. 3 cm long, subtended by a slender spathe 1 cm long, from an annulus below the apex of the ramicaul; floral bracts tubular, oblique, acute, 5-6 mm long; pedicels 2.5 mm long; ovary curved, 2 mm long; flowers nutant; **sepals** glabrous and dark purple externally, purple above the middle within, gray below the middle, the dorsal sepal elliptical-ovate, obtuse, 6.5-7.5 mm long, 4-4.5 mm wide, 3-veined, connate basally to the laterals for 1-1.5 mm, the lateral sepals ovate, oblique, with the apex decurved, subacute, 6-7.5 mm long, 4-4.25 mm wide, connate basally 1 mm, more or less held forward; **petals** dull gray-purple, thick, transversely oblong, subverrucose, 0.8 mm long, 1.5 mm wide, the apex broadly subtruncate with the thickening vaguely delineated; **lip** dull gray-purple, subquadrate, 1 mm long, 0.75 mm wide, 0.4 mm deep, the apex triangular, acute, concave, the bar with an elevated, rounded, marginal callus, the dorsum with a midline callus that merges with the shortly pubescent base, the base truncate, hinged to the base of the column; **column** stout, 1 mm long, 1 mm wide, the stigmatic lobes triangular and protuberant laterally, the foot obsolescent, the anther and the stigma apical.

PERU: **Junín**: Huancayo, Valley of Pariahuanca, between Panti and Rocchac, alt. 2400 m, Mar. 1913, *A. Weberbauer 6534* (Holotype destroyed at B: Lectotype here designated, AMES).

ECUADOR: **Morona-Santiago**: forest along new road west of Macas toward Guamote, alt. 1900 m, *C. Luer, J. Luer, A. & P. Jesup, A. Hirtz & S. Ortega 13935* (MO).

This species is uncommon, known from central Peru, where it was first collected by Weberbauer, and eastcentral Ecuador. It is characterized by a large habit with the large-flowered raceme exceeding the elliptical, petiolate leaf. The sepals are ovate with the laterals, barely connate at the base, are more or less directed forward. The thick, transversely oblong petals are faintly verrucose without a clear demarcation of a thickened apical margin. The lip is longer than broad with an acute, triangular apex.

346., 346a. Stelis nexipous Garay, Bot. Mus. Leafl. Harvard Univ. 18: 194, 1958.

Ety.: From the Greek *nexipous*, "web-footed," referring to the shape of the flower.

Plant medium in size, epiphytic, caespitose; roots numerous, very slender. Ramicauls erect, stout, 4-12 cm long, enclosed by a tubular sheath from below the middle and 2-3 other sheaths at the base. **Leaf** erect, coriaceous, elliptical-oblong, subacute to obtuse, petiolate, 5-11 cm long, 0.8-2 cm wide, contracted below into a slender petiole 1-1.5 cm long. **Inflorescence** an erect, congested, secund, many-flowered raceme with several to many, nutant, overlapping flowers open simultaneously, 10-30 cm long including the peduncle 2-4 cm long, subtended by a spathe 1-1.5 cm long, from an annulus below the apex of the ramicaul; floral bracts oblique, acute, 3-5 mm long; pedicels 2-5 mm long; ovary 2-2.5 mm long; **sepals** glabrous and shiny purple externally, olive green to red-purple within, occasionally yellow, microscopically pubescent within, the dorsal sepal deeply connate for 5-6 mm to the lateral sepals to form a 3-lobed, flat, flabellate flower 11-12 mm long, 11-13 mm wide, the dorsal sepal obovate, obtuse, 9-11 mm long, 5 mm wide, 3-veined, the lateral sepals obliquely oblong, 8 mm long, 4 mm wide, 3-veined, connate basally for 1-2 mm; **petals** purple, transversely oblong, 0.6 mm long, 1.2 mm wide, 3-veined, broadly rounded at the apex, with the margin broadly thickened, shallowly concave below; **lip** purple, ovoid, 0.9 mm long, 0.8 mm wide, 0.5 mm deep, the apex obtuse, minutely apiculate, shallowly concave before a bar that is elevated centrally with a small glenion, the dorsum with a broad, microscopically pubescent, low callus, the base truncate, hinged to the base of the column; **column** stout, 1 mm long, 1.2 mm wide, the foot obsolescent, the anther and the bilobed stigma apical.

ECUADOR: **Pastaza**: Mera, toward Mangayacu, alt. ca. 1100 m, 7 Mar. 1956, *E. Asplund 19638* (Holotype of *S. nexipous*: S; Isotype: AMES); north of Mera, alt. 1350 m, 12 Apr. 1985, *C. Luer, J. Luer, A. Hirtz & W. Flores 11197* (MO); Río Negro, alt. 1350 m, 13 Oct. 1984, *A. Hirtz & C. Dodson 2021* (MO).
Napo: between Hollin and Loreto, alt. 1000 m, Nov. 1988, *A. Hirtz 3928* (MO).
Tungurahua: Río Anzu, alt. 1150 m, 20 July 2004, *A. Hirtz 8773* (MO).
Morona-Santiago: between Gualaceo and Limón, alt. 1900-2000 m, 22 Mar. 1974, *G. Harling & L. Andersson 12740* (GB); Río Yanguza, between Limón and Río Zamora. alt. 1200 m, 22 Oct. 1999, *A. Hirtz 7045* (MO); Cordillera del Condor, east of Chuchumbletza, alt. 1750 m, 21 May 1988, *C. Luer, A. Hirtz et al. 13560* (MO).
Loja: road to TV antenna east of Yangana, alt. 2480 m, 4 Mar. 1982, *C. Luer, A. Andreetta, D. D'Alessandro & S. Dalström 7177* (SEL).
Zamora-Chinchipe: between Loja and Zamora, alt. 1750 m, 18 Apr. 1973, *L. Holm-Nielsen, S. Jeppesen, B. Løjtnant & B. Ølgaard 3771* (AAU, SEL); between Loja and Zamora, alt. 1400 m, 29 Sept. 1961, *C.H. Dodson & L.B. Thien 814* (SEL); pass between Loja and Zamora, Sept. 1980, *C. Luer & J. Luer 5516* (SEL); Quebrada Honda, alt. 1600 m, 6 Apr. 1982, *S. Dalström 185* (SEL); along Río Zamora, west of Zamora, alt. 1500 m, 20 Feb. 1986, *C. Luer, J. Luer, A. Hirtz et al. 11954* (MO); south of the pass south of Yangana toward Valladolid, alt. 2000 m, 18 Mar. 1984, *C. Luer, S. Dalström, T. Höijer & J. Kuijt 9622* (MO); along Río Zamora west of Zamora, alt. 1500 m, 20 Feb. 1986, *C. Luer, J. Luer, A. Hirtz & A. Embree 12033* (MO).

This species, relatively frequent in southeastern Ecuador, is not remarkably different vegetatively from many other species of the genus. Florally, there is marked variation. In the raceme, nutant flowers are borne facing in one direction and overlapping in two ranks. The deep connation between the lateral sepals and the dorsal sepal, and the shallow connation between the lateral sepals below the central apparatus into a flat, three-lobed fan-shaped flower is distinctive, but in various dimensions. A small variation with flowers half the dimensions given in the description is illustrated in Figure 346a. Although basically similar, the details of the lip vary markedly.

347., 347a. Stelis steganopus Garay, Bot. Mus. Leafl. Harvard Univ. 27: 183, 1980.

Ety.: From the Greek *steganopous*, "sheath-footed," referring to the ramicauls.

Plant medium in size, epiphytic, caespitose; roots slender. Ramicauls erect, stout, 5-8 cm long, enclosed by a loose, tubular sheath from below the middle and 2-3 other sheaths at the base. **Leaf** erect, coriaceous, elliptical-oblong, subacute to obtuse, petiolate, 5-10 cm long, 1-1.5 cm wide, contracted below into a petiole ca. 1 cm long. **Inflorescence** an erect, congested, distichous, many-flowered raceme with many flowers open simultaneously, 5-8 cm long including the peduncle ca. 1 cm long, subtended by a spathe ca. 1 cm long, from an annulus below the apex of the ramicaul; floral bracts oblique, acute, 2-3 mm long; pedicels 1.5-2 mm long; ovary 1.5-2 mm long; flowers dark purple, suffused with olive; **sepals** glabrous externally, microscopically pubescent within, the dorsal sepal obovate, subacute, 3-4 mm long, 2-3 mm wide, 3-veined, connate 1.5 mm to the lateral sepals to form a 3-lobed, expanded, flabellate flower, the lateral sepals obliquely ovate, subacute, 3-4 mm long, 2.5-3 mm wide, 3-veined, connate 0.5 mm basally to each other; **petals** purple, transversely oblong, broadly rounded at the apex, 0.6 mm long, 0.8 mm wide, 1-veined, shallowly concave; **lip** purple, elliptical-obovate, obtuse, 1.75 mm long, 1 mm wide, 0.3 mm deep, with thick, basal margins that converge into an elevated, shallowly cleft callus, the base truncate, hinged to the base of the column; **column** stout, 0.5 mm long, 1 mm wide, the foot obsolescent, the anther and the bilobed stigma apical.

ECUADOR: **Morona-Santiago**: Cordillera del Cutucú, southwest of Río Itzintza, without altitude or date, *Camp E-1299* (Holotype: NY); Pangui Alto, alt. 1200 m, flowered in cultivation by Ecuagenera, Gualaceo, July 2004, *A. Hirtz 8792* (MO).
Pastaza: in forest being logged, 20 km east of Puyo, alt. ca. 1000 m, 3 Aug. 1977, *C. Luer, J. Luer & J. Brenner 1810A* (SEL).

This rare species is apparently endemic on the lower, eastern slopes of central Ecuador. Among the species of this section, it is most closely related to the relatively frequent *Stelis nexipous* Garay, the two species being published side by side in 1980 by Leslie Garay. *Stelis steganopus* is characterized by a smaller habit, shorter racemes, and smaller flowers. As with the other species, the dorsal sepal is deeply connate to the lateral sepals while they are practically free from each other. The petals are minute. The lip is obovate and obtuse with an elevated, basal callus formed by converging margins.

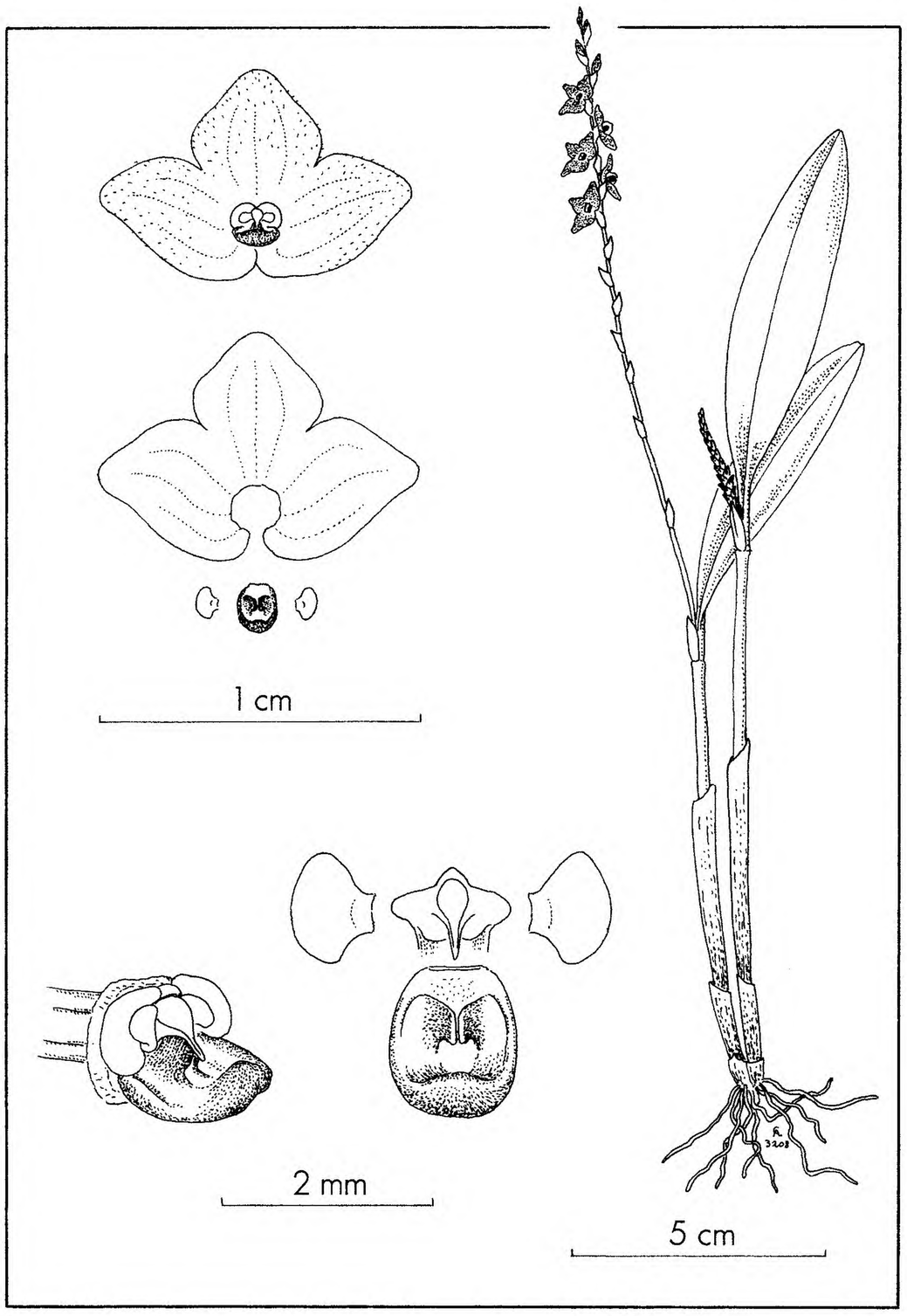


Fig. 343. Stelis aperta

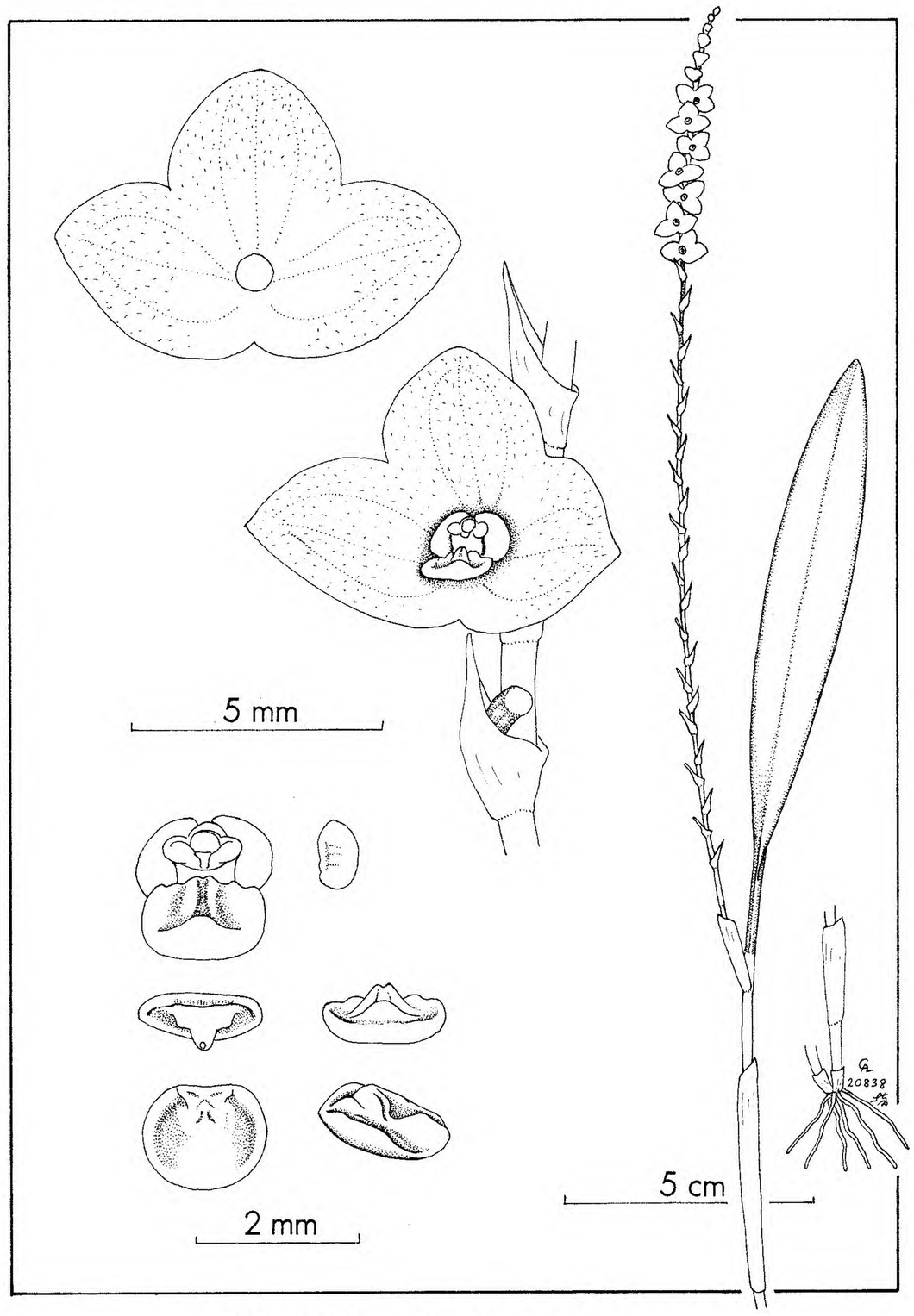


Fig. 343a. Stelis aperta

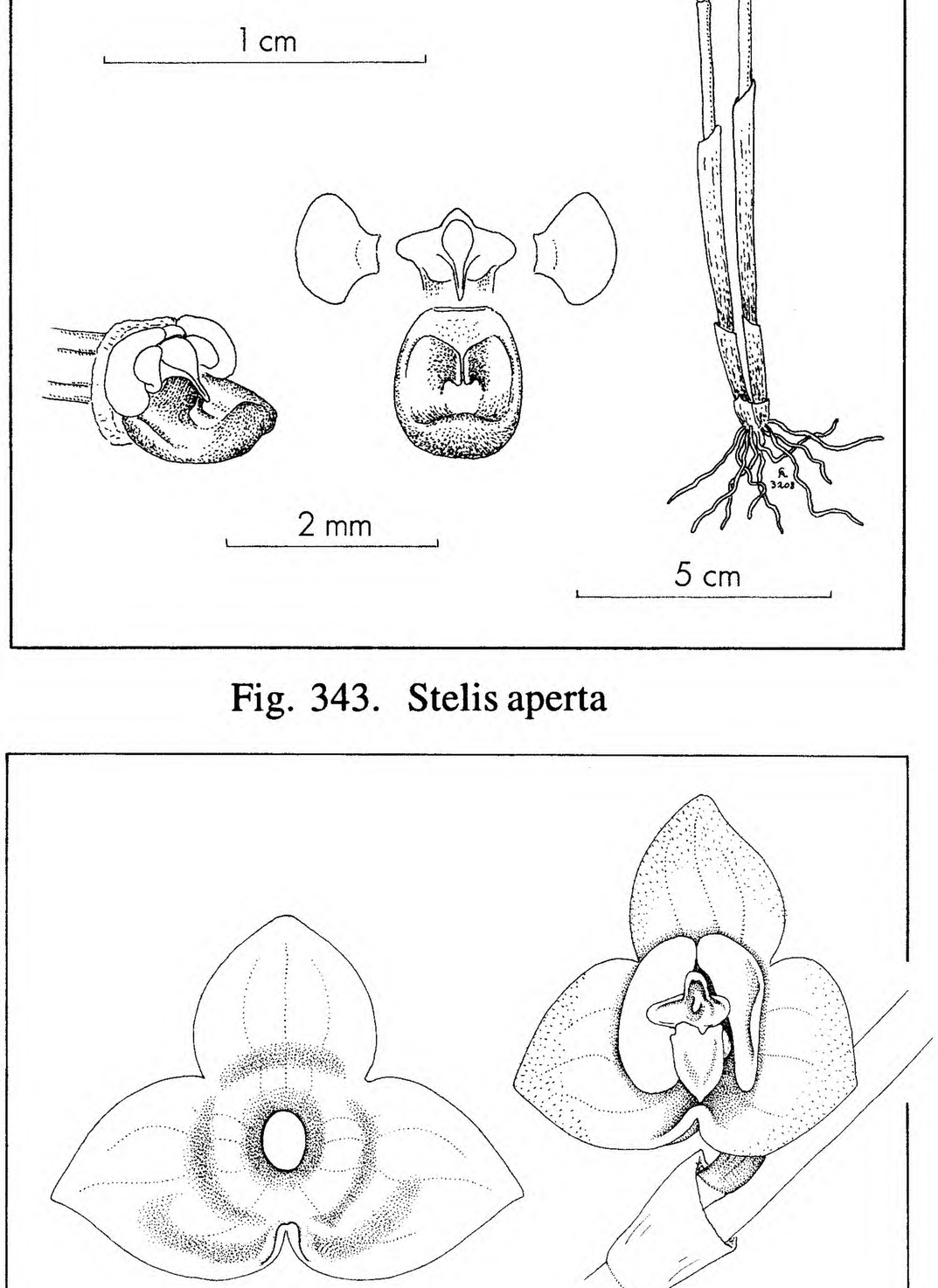


Fig. 344. Stelis genychila

Fig. 345. Stelis juninensis

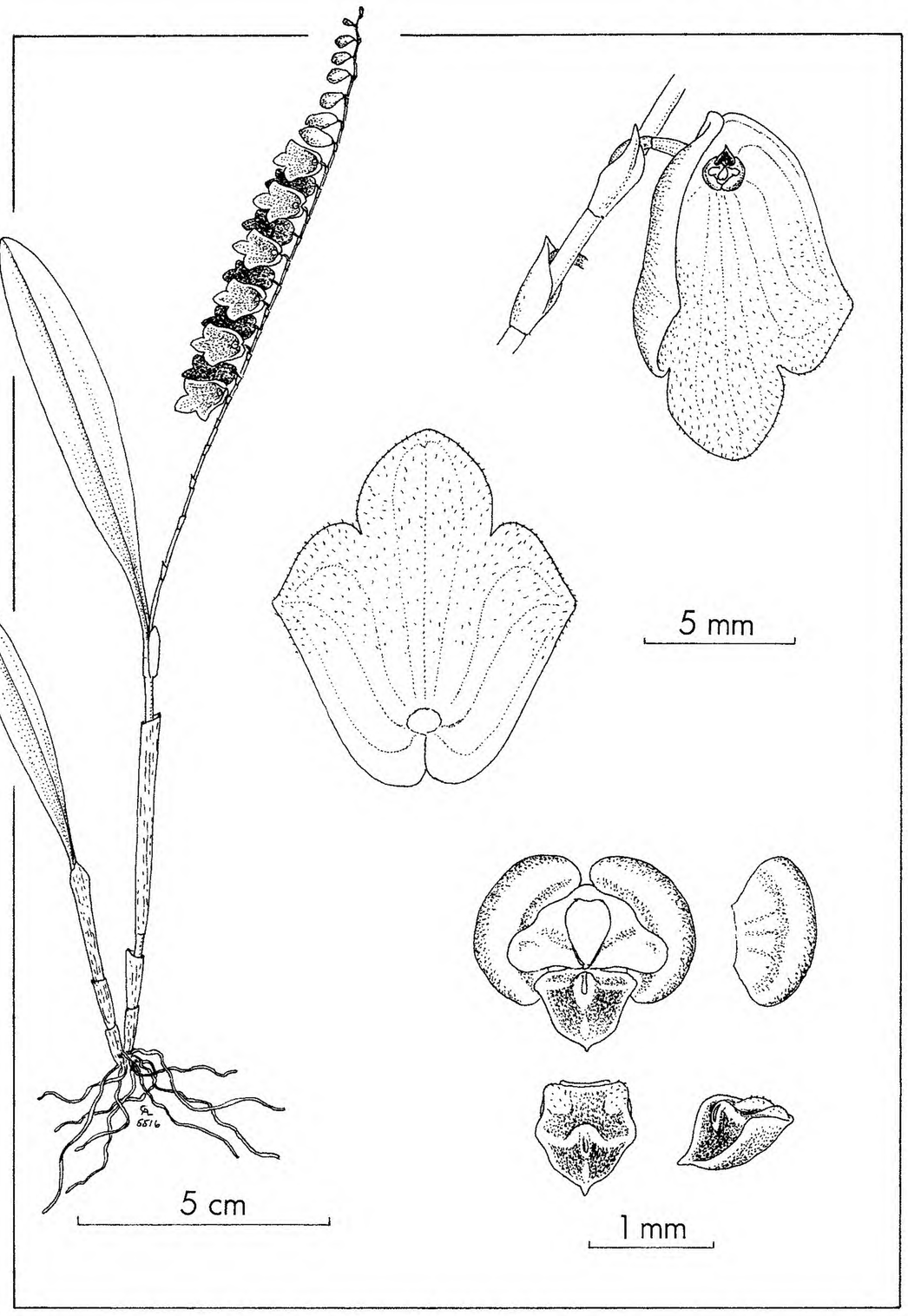


Fig. 346. Stelis nexipous

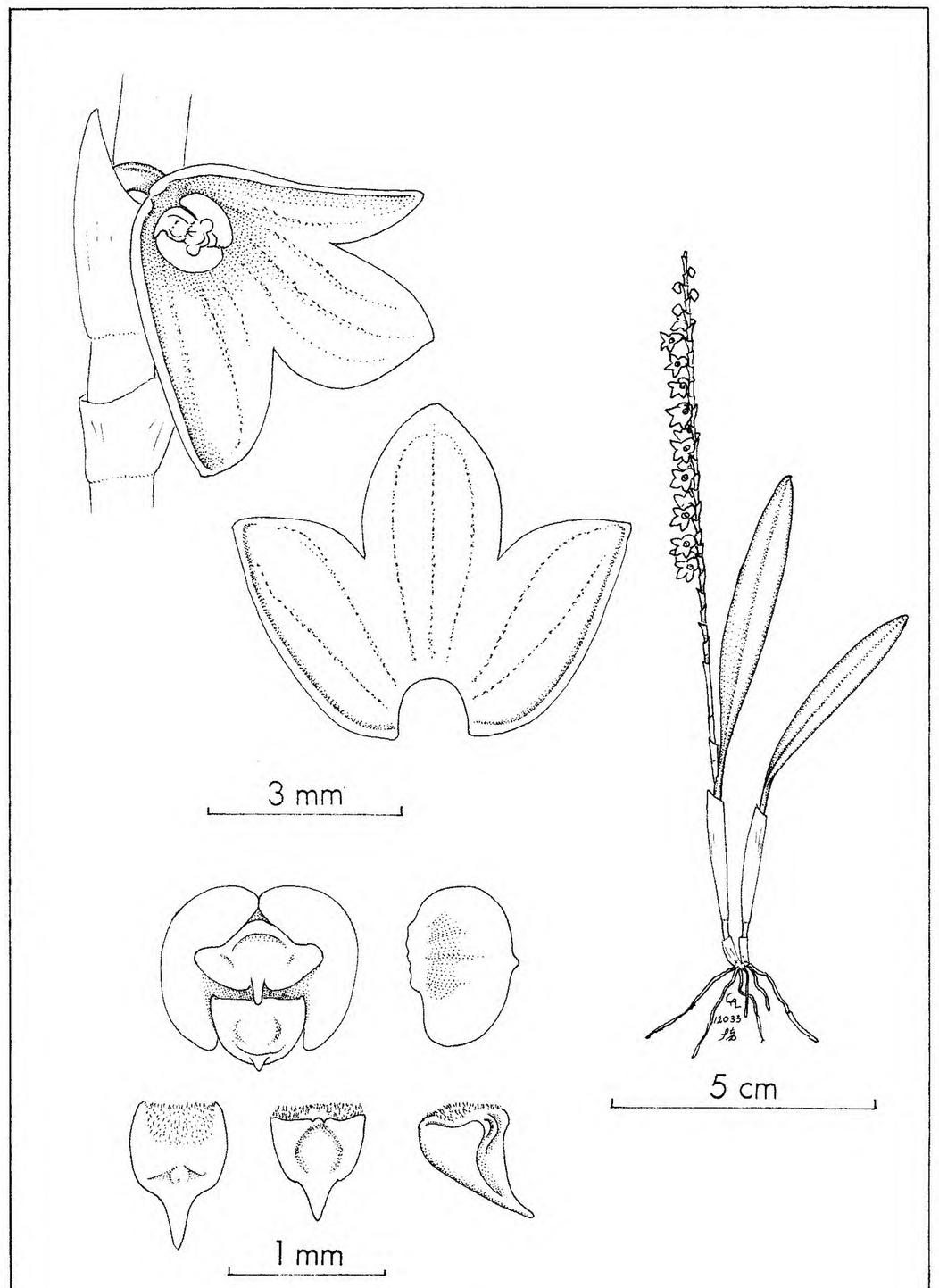


Fig. 346a. Stelis nexipous

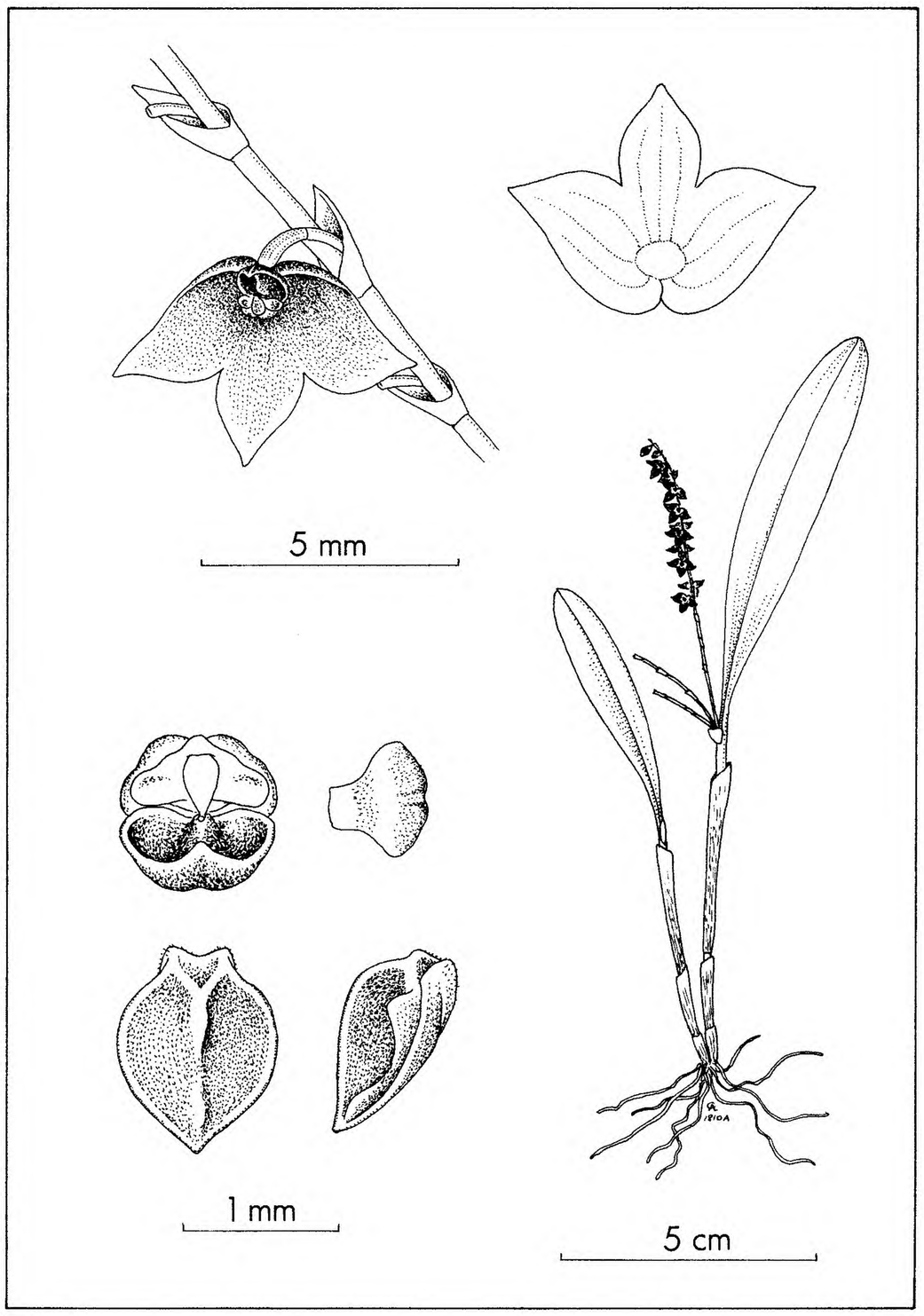


Fig. 347. Stelis steganopus

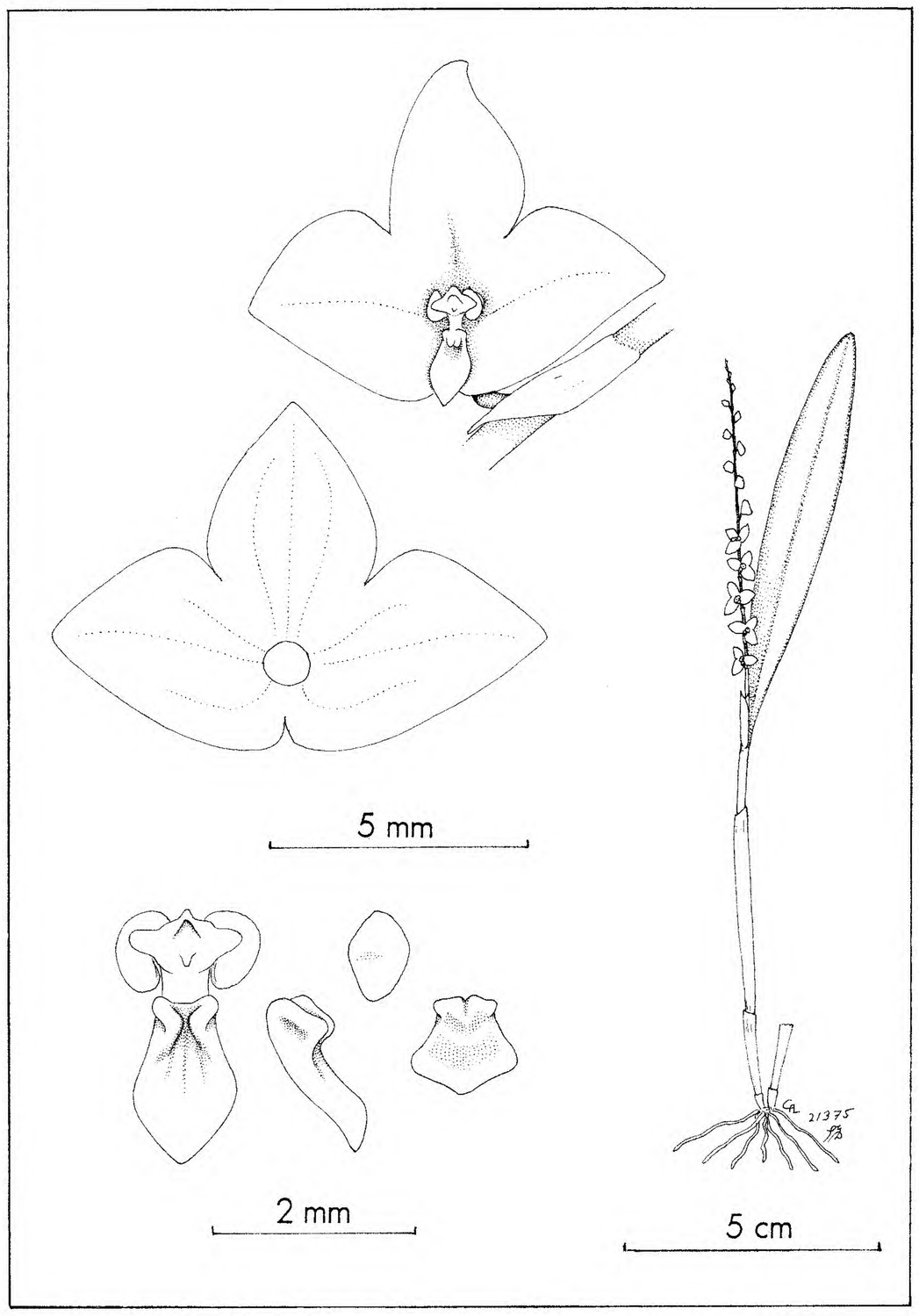


Fig. 347a. Stelis steganopus

3. *STELIS* Sect. *STELIS*

Stelis sect. **Stelis** (Ruiz & Pav.) Pers. Syn. Pl. 2: 254, 1807.
Type: *Stelis ophioglossoides* (Jacq.) Sw.

Syn.: *Dialissa* Lindl., Ann. Mag. Nat. Hist. 15: 107, 1845.
Type: *Dialissa pulchella* Lindl.

Syn.: *Stelis* sect. *Dialissa* (Lindl) Lindl., Folia Orchid. *Stelis* 2, 1858.

Syn.: *Stelis* sect. *Trivalves* Rchb.f., Walp. Ann. Bot. Syst. 6: 199, 1861, invalidly published.
Ety.: From the Latin *trivalvis*, ``three-valved,'' referring to the three sepals.
Lectotype: *Stelis major* Rchb.f., designated by Garay, Bot. Mus. Leafl. Harvard Univ. 27(7-9): 179, 1980.

Syn.: *Stelis* sect. *Patuliflorae* Barb.Rodr., Gen. Sp. Orchid. Nov. 2: 82, 1882.
Ety.: From the Latin *patuliflorus*, ``with patulous flowers,'' referring to the same.
Lectotype: *Stelis megantha* Barb.Rodr., designated by Luer, Monogr. Syst. Bot. Missouri Bot. Gard. 15: 62, 1986.

Syn.: *Stelis* sect. *Distichae* Lindl. ex Cogn. in Martius, Fl. Bras. 3(4): 343, 1896.
Ety.: From the Latin *distichus*, ``in two opposite rows,'' referring to the inflorescence.
Lectotype: *Stelis disticha* Poepp. & Endl., designated by Garay, Bot. Mus. Leafl. Harvard Univ. 27(7-9): 179, 1980.

Syn.: *Stelis* subgen. *Eustelis* Lindl. ex Cogn. in Martius, Fl. Bras. 3(4): 345, 1896.
Ety.: From the Greek prefix *eu-*, ``good,'' suggesting the genuine *Stelis*.
Type: *Stelis ophioglossoides* (Jacq.) Sw.

Syn.: *Stelis* sect. *Monostachyae* Lindl. ex Cogn. in Martius, Fl. Bras. 3(4): 344, 1896.
Ety.: From the Greek *monostachys*, ``single spike,'' referring to the inflorescence.
Lectotype: *Stelis argentata* Lindl., designated by Garay, Bot. Mus. Leafl. Harvard Univ. 27(7-9): 180, 1980.

Syn.: *Stelis* sect. *Polystachyae* Lindl. ex Cogn. in Martius, Fl. Bras. 3(4): 343, 1896.
Ety.: From the Greek *polystachys*, ``many spikes,'' referring to the inflorescence.
Lectotype: *Stelis hylophila* Rchb.f., designated by Luer, Monogr. Syst. Bot. Missouri Bot. Gard. 15: 62, 1986.

Syn.: *Stelis* sect. *Chasmostelis* Schltr., Repert. Spec. Nov. Regni Veg. Beih. 19: 18, 1923.
Ety.: From the Greek *chasma*, ``a gaping hole,'' and *Stelis* referring to the deeply excavate lip.
Type: *Stelis despectans* Schltr.

Syn.: *Stelis* subgen. *Stelis* Sw. sensu Garay, Canad. J. Bot. 34: 350, 1956,
Type: *Stelis trigoniflora* (Sw.) Garay.

Syn.: *Stelis* sect. *Papulosae* Garay, Canad. J. Bot. 34: 351, 1956,
Ety.: From the Latin *papulosus* ``papular ,'' referring to the floral parts.
Lectotype: *Stelis trigoniflora* (Sw.) Garay, designated by Garay, Bot. Mus. Leafl. Harvard Univ. 26: 25, 1978.

Syn.: *Stelis* sect. *Fissae* Garay, Canad. J. Bot. 34: 351, 1956,
Ety.: From the Latin *fissus*, ``cleft,'' referring to the sepals.
Lectotype: *Stelis papaquerensis* Rchb.f., designated by Garay, Bot. Mus. Leafl. Harvard Univ. 27(7-9): 179, 1980.

Syn.: *Stelis* subgen. *Dialissa* (Lindl.) Garay, Canad. J. Bot. 34: 351, 1956.
Bas.: *Dialissa* Lindl.

Syn.: *Stelis* sect. *Concavae* Garay, Canad. J. Bot. 34: 351, 1956,
Ety.: From the Latin *concavus*, ``concave,'' referring to the lip.
Lectotype: *Stelis oblonga* (Ruiz & Pav.) Willd., designated by Garay, Bot. Mus. Leafl. Harvard Univ. 27(7-9): 180, 1980.

Syn.: *Stelis* sect. *Distinctae* Garay, Canad. J. Bot. 34: 351, 1956,
Ety.: From the Latin *distinctus*, ``distinct,'' referring to a quality of the plant.
Lectotype: *Stelis aprica* Lindl., designated by Garay, Bot. Mus. Leafl. Harvard Univ. 27(7-9): 180, 1980.

Syn.: *Stelis* subgen. *Stellata* Garay, Bot. Mus. Leafl. Harvard Univ. 27(7-9): 179, 1980.
Ety.: From the Latin *stellatus*, ``stellate,'' referring to the flowers.
Type: *Stelis trigoniflora* (Sw.) Garay.

Syn.: *Stelis* sect. *Pedales* Garay, Bot. Mus. Leafl. Harvard Univ. 27(7-9): 179, 1980.
Ety.: From the Latin *pedalis*, ``a foot long,'' referring to a long column-foot.
Type: *Stelis lanceolata* (Ruiz & Pav.) Willd.

Syn.: *Stelis* sect. *Rhomboideae* Garay, Bot. Mus. Leafl. Harvard Univ. 27(7-9): 179, 1980.
Ety.: From the Greek *rhombeus*, ``rhombic,'' referring to the lip.
Type: *Stelis rhomboidea* Garay.

Syn.: *Stelis* sect. *Isochilae* Garay, Bot. Mus. Leafl. Harvard Univ. 27(7-9): 180, 1980.
Ety.: From the Greek *isochilos* ``with an equal lip,'' referring to the flower.
Type: *Stelis apiculata* Lindl.

Syn.: *Apatostelis* Garay, Bot. Mus. Leafl. Harvard Univ. 27(7-9): 185, 1980.
Type: *Stelis hylophila* Rchb.f.

As typified by *Stelis ophioglossoides* (Jacq.) Sw., *Stelis* sect. *Stelis* is distinguished by more or less similar sepals that are free or variously connate without a synsepal. Species with widely expanded and more or less flat flowers are distinguished from those species with lateral sepals that are antrorse, that is, directed forwardly, suggesting a "pseudo-synsepal." Taxa with these antrorse sepals were treated as *Stelis* sect. *Labiatae* in Parts One and Two (Luer, 2004, 2006), following Lindley. Lateral sepals held in apposition, or are connivent or connate into a synsepal, are found in *Stelis* sect. *Humboldtia*. Assigning some of these species to one key or another is difficult, sometimes prone to error, and open to discussion, because of individual variations, and often ill-defined criteria for the keys.

The species of *Stelis* sect. *Stelis* are sorted into five keys. The mainly caespitose species are sorted into the first four. Caespitose species with expanded sepals are the most numerous, so they are sorted into three keys, depending upon the size of mature plants. KEY VI contains the smallest species that are less than five centimeters tall exclusive of an inflorescence. KEY VII contains the great number of middle-sized species between five and ten centimeters tall, and the largest ones more than ten centimeters tall constitute KEY VIII. Caespitose species with antrorse lateral sepal are fewer in number, and are found in KEY IX. The last key, or KEY X, contains all the non-caespitose species, such as repent, scandent, or prolific species, and with more or less similar sepals regardless of the position of the lateral sepals.

These keys are keys to identification, not for classification. Although more closely allied species tend to appear in the same key, the keys are purely artificial.

Fory-three species of *Stelis* sect. *Stelis* with more or less flat and widely expanded flowers are small and less than five centimeters tall, excluding the inflorescence. They are listed below, followed by their appearance within the *Icones Pleurothallidinarum* series.

Stelis aliquantula Luer & Hirtz, *Icones Pleuroth.* 29, Part Three, Fig. 224., **S. vesca**
Stelis apiculifera Luer & Hirtz, *Icones Pleuroth.* 30, Part Four, Fig. 351.
Stelis brevissimicaudata Luer & Hirtz, *Icones Pleuroth.* 29, Part Three, Fig. 231.
Stelis calantha Luer & Hirtz, *Icones Pleuroth.* 26, Part Two, Fig. 136.
Stelis calothece Schltr., *Icones Pleuroth.* 24, Part One, Fig. 78., as *S. porphyrea*
Stelis capitata Luer & Hirtz, *Icones Pleuroth.* 26, Part Two, Fig. 139.
Stelis ciliatissima Luer & Hirtz, *Icones Pleuroth.* 26, Part Two, Fig. 142.
Stelis coarctata Luer, *Icones Pleuroth.* 30, Part Four, Fig. 358.

Stelis concinna Lindl., *Icones Pleuroth.* 24, Part One, Fig. 67., *S. longihirta*
Stelis copiosa Luer & Hirtz, *Icones Pleuroth.* 29, Part Three, Fig. 236.
Stelis crossota Luer & Hirtz, *Icones Pleuroth.* 29, Part Three, Fig. 240.
Stelis cutucuënsis Luer & Hirtz, *Icones Pleuroth.* 24, Part One, Fig. 45.
Stelis discoidea Luer & Dalström, *Icones Pleuroth.* 26, Part Two, Fig. 151.
Stelis esmeraldae Luer & Hirtz, *Icones Pleuroth.* 26, Part Two, Fig. 153a.
Stelis gemmulosa Luer & Hirtz, *Icones Pleuroth.* 26, Part Two, Fig. 156.
Stelis glaberrima Luer & Hirtz, *Icones Pleuroth.* 24, Part One, Fig. 61.
Stelis glanduligera Luer & Hirtz, *Icones Pleuroth.* 26, Part Two, Fig. 157.
Stelis globulifera Luer & Hirtz, *Icones Pleuroth.* 24, Part One, Fig. 62.
Stelis guianensis Rolfe, *Icones Pleuroth.* 24, Part One, Fig. 40., as *S. apiculifera*
Stelis hallii Lindl., *Icones Pleuroth.* 29, Part Three, Fig. 291., as *S. stormii*; Part Four, Fig. 291a., 291b.
Stelis hydroidea Luer & Hirtz, *Icones Pleuroth.* 26, Part Two, Fig. 159.
Stelis hymenopetala Luer & Endara, *Icones Pleuroth.* 29, Part Three, Fig. 254., **S. sanctae-rosae**
Stelis intonsa Luer & Endara, *Icones Pleuroth.* 26, Part Two, Fig. 163., **S. hydroidea**
Stelis lentiginosa Lindl., *Icones Pleuroth.* 30, Part Four, Fig. 384.
Stelis levicula Luer, *Icones Pleuroth.* 29, Part Three, Fig. 258.
Stelis limbata Luer & Hirtz, *Icones Pleuroth.* 29, Part Three, Fig. 260.
Stelis longihirta Luer & Hirtz, *Icones Pleuroth.* 24, Part One, Fig. 67., **S. concinna**
Stelis longissima Luer & Hirtz, *Icones Pleuroth.* 24, Part One, Fig. 68., **S. exilis**
Stelis maloi Luer, *Icones Pleuroth.* 30, Part Four, Fig. 389.
Stelis micacea Luer & Hirtz, *Icones Pleuroth.* 24, Part One, Fig. 70.
Stelis microchila Schltr., *Icones Pleuroth.* 30, Part Four, Fig. 391.
Stelis opimipetala Luer & Hirtz, *Icones Pleuroth.* 26, Part Two, Fig. 176.
Stelis orbiculata Luer & Endara, *Icones Pleuroth.* 29, Part Three, Fig. 275., **S. vesca**
Stelis ortegae Luer & Hirtz, *Icones Pleuroth.* 24, Part One, Fig. 73., **S. globulifera**
Stelis paulula Luer & H.P.Jesup, *Icones Pleuroth.* 29, Part Three, Fig. 278.
Stelis phil-jesupii Luer & Hirtz, *Icones Pleuroth.* 24, Part One, Fig. 75.
Stelis pilosa Luer & Hirtz, *Icones Pleuroth.* 24, Part One, Fig. 76., **S. pilosissima**
Stelis pilosissima Luer & Hirtz, *Icones Pleuroth.* 24, Part One, Fig. 76., as **S. pilosa**
Stelis porphyrea Luer & Hirtz, *Icones Pleuroth.* 24, Part One, Fig. 78., **S. calothece**
Stelis prava Luer & Hirtz, *Icones Pleuroth.* 26, Part Two, Fig. 184.
Stelis pusilla Kunth, *Icones Pleuroth.* 30, Part Four, Fig. 405., 405a., 405b.
Stelis sanctae-rosae Luer & Hirtz, *Icones Pleuroth.* 24, Part One, Fig. 83.
Stelis schistochila Luer & Hirtz, *Icones Pleuroth.* 26, Part Two, Fig. 190.
Stelis sororcula Luer & Hirtz, *Icones Pleuroth.* 29, Part Three, Fig. 290.
Stelis stormii Luer & Endara, *Icones Pleuroth.* 29, Part Three, Fig. 291.. **S. hallii**
Stelis translucens Luer & Hirtz, *Icones Pleuroth.* 29, Part Three, Fig. 298.
Stelis tumida Luer & Hirtz, *Icones Pleuroth.* 26, Part Two, Fig. 195., **S. hydroidea**
Stelis umbonis Luer & Hirtz, *Icones Pleuroth.* 29, Part Three, Fig. 303.
Stelis uniflora Luer & Hirtz, *Icones Pleuroth.* 29, Part Three, Fig. 304.
Stelis vesca Luer & Hirtz, *Icones Pleuroth.* 24, Part One, Fig. 89.
Stelis viamontis Luer & Hirtz, *Icones Pleuroth.* 26, Part Two, Fig. 196.
Stelis yanganensis, Luer & Hirtz, *Icones Pleuroth.* 24, Part One, Fig. 91; Part Three, Fig. 288. as smilis.
Stelis zamorae Luer & Hirtz, *Icones Pleuroth.* 29, Part Three, Fig. 306.

KEY VI: The caespitose species of *Stelis* sect. *Stelis* less than 5 cm tall and with widely spread, more or less flat flowers.

1 Dorsal sepal 3-veined
2 Leaves erect, broadly elliptical, overlapping, on ramicauls ca. 1 mm long ..... *S. coarctata*
2' Leaves not erect and not broadly elliptical, sessile and overlapping
3 Inflorescence 1-flowered ..... *S. uniflora*
3' Inflorescence racemose
4 Mature raceme shorter than or equal to the leaf in length
5 Sepals ca. 1 mm long; petals 1-veined..... *S. glanduligera*
5' Sepals 3-4 mm long; petals 3-veined
6 Lip flat without a glenion..... *S. opimipetala*
6' Lip shallowly concave with a large glenion..... *S. esmeraldae*
4' Mature raceme longer than the leaf
7 Lip with the apex apiculate
8 Petals 1-veined
9 Lip with a short, acute apiculum..... *S. apiculifera*
9' Lip with a short, obtuse apiculum (sometimes nearly absent)
10 Sepals with a thick margin..... *S. limbata*
10' Sepals without a thick margin..... *S. pusilla*
8' Petals 3-veined
11 sepals long-ciliate within the margins..... *S. crossota*
11' sepals pubescent or glabrous, not long-ciliate within the margins
12 Sepals pubescent; leaves less than 3 mm wide..... *S. guianansis*
12' Sepals shortly pubescent or glabrous; leaves 5-10 mm wide..... *S. calothece*
7' Lip with the apex not apiculate
13 Sepals with thickened margins
14 Sepals broadly obtuse with thick, acuminate tips..... *S. brevissimicaudata*
14' Sepals thin with thickened margins, not with thick, acuminate tips..... *S. limbata*
13' Sepals not with thickened margins
15 Sepals conspicuously ciliate or pubescent
16 Petals 1-veined
17 Raceme longer than the leaf, flexuous; lip obovoid, widest at the truncate apex ..... *S. concinna*
17' Raceme shorter than the leaf, strict or subflexuous; lip not obovoid
18 Sepals densely pubescent; lip 3-lobed..... *S. microchila*
18' Sepals ciliate-pubescent; lip rounded at the apex, not 3-lobed
19 Sepals densely capitate-pubescent..... *S. capitata*
19' Sepals ciliate, marginally pubescent..... *S. gemmulosa*
16' Petals 3-veined
20 Raceme flexuous; petals thick..... *S. esmeraldae*
20' Raceme strict; petals thin
21 Dorsal sepal 4 mm long..... *S. pilosissima*
21' Dorsal sepal 1.75 mm long..... *S. sanctae-rosae*
15' Sepals glabrous or minutely pubescent, not conspicuously ciliate

22 Petals 1-veined
23 Petals ciliate-papillose
24 Petals densely ciliate-pubescent.....*S. ciliatissima*
24' Petals cellular-papillose.....*S. viamontis*
23' Petals not ciliate-papillose
25 Sepals less than 1.5 mm long.....*S. micacea*
25' Sepals 2 mm long or longer
26 Lip obpyriform, longer than wide, type-B.....*S. lentiginosa*
26' Lip short, wider than long, type-A
27 Anther cap proportionately large, papillose.....*S. copiosa*
27' Anther cap neither proportionately large, nor papillose
28 Plant more than 4 cm tall.....*S. hallii*
28' Plant up to 2.5 cm tall.....*S. vesca*
22' Petals 3-veined
29 Lip modifications of type-B
30 Lip shallowly concave, discoid.....*S. discoidea*
30' Lip deeply concave, not discoid.....*S. maloi*
29' Lip modifications of type-A
31 Lip with the dorsal callus long-pubescent.....*S. hydroidea*
31' Lip with the dorsal callus only short-pubescent or glabrous
32 Raceme densely flowered with flowers overlapping
33 Sepals minutely pubescent; petals with a thick transverse callus.....
.....*S. calantha*
33' Sepals glabrous; petals without a transverse callus.....*S. hydroidea*
32' Raceme subdensely flowered to lax, with flowers not overlapping
34 Inflorescence less than 6 cm long
35 Leaves less than 5 mm wide
36 Rachis flexuous; petals with a transverse callus.....*S. sororcula*
36' Rachis subflexuous, nearly strict; petals without a transverse
callus.....*S. cutucuënsis*
35' Leaves ca. 1 cm wide
37 Rachis subflexuous; dorsal sepal 2.5 mm long, 3 mm wide.....
.....*S. zamorae*
37' Rachis strict; dorsal sepals 4.5 mm long, 5 mm wide.....
.....*S. translucens*
34' Inflorescence more than 5 cm long
38 Raceme weak, flexible; dorsal sepal cellular-pubescent, 1 mm
.....*S. paulula*
38' Raceme not weak and flexible; dorsal sepal, glabrous, more than
1.5 mm long
39 Plant up to 2.5 cm tall.....*S. vesca*
39' Plant more than 3.5 cm tall.....*S. yanganensis*
1' Dorsal sepal 5- to 7-veined, sometimes incompletely veined
40 Dorsal sepal circular, much larger than a lateral sepal.....*S. phil-jesupii*
40' Dorsal sepal not circular and larger than a lateral sepal

41 Dorsal sepal connate half length to lateral sepals, lateral sepals short, oblique much wider than long ..... *S. prava*
41' Sepals not as above
42 Dorsal sepal ovate, longer than wide, lip with transverse cleft..... *S. schistochila*
42' Dorsal sepal broadly ovate, as wide as or wider than long; lip not cleft
43 Leaves less than 5 mm wide ..... *S. levicula*
43' Leaves 7-12 mm wide
44 Lip with protruding bar and glenion, with the dorsum curving downward without a callus ..... *S. glaberrima*
44' Lip with one callus on the dorsum, not curving downward
45 Petals obtuse with a transverse callus..... *S. umbonis*
45' Petals thickly oblong without a transverse callus..... *S. globulifera*

The following 68 species of *Stelis* sect. *Stelis* with more or less flat, widely expanded flowers constitute the middle-sized species between five centimeters and ten centimeters tall, excluding the inflorescence. They are listed below, followed by their appearance within the *Icones Pleurothallidinarum* series.

Stelis aclyda Luer & Hirtz, new sp., *Icones Pleuroth.* 30, Part Four, Fig. 348.
Stelis adinostachya Luer & Hirtz, *Icones Pleuroth.* 29, Part Three, Fig. 223.
Stelis alternans Luer & Hirtz, *Icones Pleuroth.* 26, Part Two, Fig. 132., 132a.
Stelis argentata Lindl., *Icones Pleuroth.* 30, Part Four, Fig. 353., 353a.
Stelis atrocaerulea Luer, *Icones Pleuroth.* 29, Part Three, Fig. 229.
Stelis azuayensis Luer, new sp., *Icones Pleuroth.* 30, Part Four, Fig. 354.
Stelis barbimentosa Luer & Endara, *Icones Pleuroth.* 29, Part Three, Fig. 230.
Stelis bermejoënsis Luer & Hirtz, *Icones Pleuroth.* 26, Part Two, Fig. 133.
Stelis bicolor Luer & Hirtz, *Icones Pleuroth.* 26, Part Two, Fig. 134.
Stelis braccata Rchb.f. & Warsz., *Icones Pleuroth.* 30, Part Four, Fig. 355.
Stelis brachyrachis Luer & Hirtz, *Icones Pleuroth.* 26, Part Two, Fig. 135.
Stelis calyptrata Luer & Hirtz, *Icones Pleuroth.* 26, Part Two, Fig. 138.
Stelis caroliae Luer, *Icones Pleuroth.* 26, Part Two, Fig. 140.
Stelis carta Luer & Hirtz, new sp., *Icones Pleuroth.* 30, Part Four, Fig. 356.
Stelis cavernula Luer & Dalström, *Icones Pleuroth.* 29, Part Three, Fig. 233.
Stelis ciliolata Luer & Dalström, *Icones Pleuroth.* 26, Part Two, Fig. 143.
Stelis complanata Luer & F.Werner, new sp., *Icones Pleuroth.* 30, Part Four, Fig. 360.
Stelis copiosa Luer & Hirtz, *Icones Pleuroth.* 29, Part Three, Fig. 236., 236a.
Stelis coracina Luer & Hirtz, *Icones Pleuroth.* 29, Part Three, Fig. 237.
Stelis cotyligera Luer & Hirtz, *Icones Pleuroth.* 26, Part Two, Fig. 148.
Stelis decurva Luer, *Icones Pleuroth.* 26, Part Two, Fig. 150.
Stelis discolor Rchb.f., *Icones Pleuroth.* 30, Part Four, Fig. 363.
Stelis discophylla Luer & Hirtz, new sp., *Icones Pleuroth.* 30, Part Four, Fig. 364.
Stelis distans Luer & Hirtz, *Icones Pleuroth.* 24, Part One, Fig. 49.
Stelis diversifolia Luer & Hirtz, *Icones Pleuroth.* 29, Part Three, Fig. 246.
Stelis dolichantha Luer & Hirtz, *Icones Pleuroth.* 29, Part Three, Fig. 247.
Stelis esmeraldae Luer & Hirtz, *Icones Pleuroth.* 26, Part Two, Fig. 153.

Stelis espinosae Luer & Endara, new sp., *Icones Pleuroth.* 30, Part Four, Fig. 367.
Stelis eublepharis Rchb.f., *Icones Pleuroth.* 30, Part Four, Fig. 368.
Stelis exacta Luer & Hirtz, *Icones Pleuroth.* 26, Part Two, Fig. 154.
Stelis exilis Luer & Hirtz, *Icones Pleuroth.* 24, Part One, Fig. 54.
Stelis gemma Garay, *Icones Pleuroth.* 30, Part Four, Fig. 372.
Stelis hallii Lindl., *Icones Pleuroth.* 29, Part Three, Fig. 291. as stormii; Part Four, Fig. 291a., 291b.
Stelis hirtella (Garay) Luer, *Icones Pleuroth.* 30, Part Four, Fig. 375.
Stelis hydroidea Luer & Hirtz, *Icones Pleuroth.* 26, Part Two, Fig. 159.
Stelis imbricans Luer & Hirtz, *Icones Pleuroth.* 26, Part Two, Fig. 160.
Stelis impostor Luer & Hirtz, *Icones Pleuroth.* 26, Part Two, Fig. 162.
Stelis jamesonii Lindl., *Icones Pleuroth.* 30, Part Four, Fig. 378.
Stelis janus Luer & Hirtz, *Icones Pleuroth.* 29, Part Three, Fig. 255.
Stelis kentii Luer, new sp., *Icones Pleuroth.* 30, Part Four, Fig. 379.
Stelis lepidella Luer & Hirtz, *Icones Pleuroth.* 29, Part Three, Fig. 257.
Stelis liberalis Luer & Portillo, *Icones Pleuroth.* 26, Part Two, Fig. 166.
Stelis limbata Luer & Hirtz, *Icones Pleuroth.* 29, Part Three, Fig. 260.
Stelis loxensis Lindl., *Icones Pleuroth.* 30, Part Four, Fig. 386.
Stelis lugoi Luer & Endara, new sp., *Icones Pleuroth.* 30, Part Four, Fig. 387.
Stelis madsenii Luer & Endara, *Icones Pleuroth.* 29, Part Three, Fig. 263.
Stelis majorella Luer, new sp., *Icones Pleuroth.* 30, Part Four, Fig. 388.
Stelis mendozae Luer, *Icones Pleuroth.* 26, Part Two, Fig. 172.
Stelis milagrensis Luer & Hirtz, *Icones Pleuroth.* 29, Part Three, Fig. 266.
Stelis mundula Luer & Hirtz, *Icones Pleuroth.* 26, Part Two, Fig. 174.
Stelis muscifera Lindl., *Icones Pleuroth.* 30, Part Four, Fig. 394.
Stelis papulina Luer & Dalström, *Icones Pleuroth.* 26, Part Two, Fig. 178.
Stelis peduncularis Luer & Hirtz, *Icones Pleuroth.* 26, Part Two, Fig. 179.
Stelis polyantha Luer & Hirtz, *Icones Pleuroth.* 26, Part Two, Fig. 182.
Stelis procera Luer & Hirtz, *Icones Pleuroth.* 24, Part One, Fig. 79., **S. viridibrunnea**
Stelis purpurella Luer & Hirtz, *Icones Pleuroth.* 24, Part One, Fig. 82.
Stelis pusilla Kunth, *Icones Pleuroth.* 30, Part Four, Fig. 405., 405a., 405c.
Stelis remifolia Luer & Hirtz, *Icones Pleuroth.* 26, Part Two, ,Fig. 187.
Stelis rotunda Luer & Hirtz, *Icones Pleuroth.* 26, Part Two, Fig. 189.
Stelis serra Lindl., *Icones Pleuroth.* 30, Part Four, Fig. 411.
Stelis similis Luer & Hirtz, *Icones Pleuroth.* 29, Part Three, Fig. 288., **S. yanganensis**
Stelis stevensonii Luer, *Icones Pleuroth.* 26, Part Two, Fig. 193.
Stelis tanythrix Luer & Hirtz, *Icones Pleuroth.* 29, Part Three, Fig. 294.
Stelis tortuosa Luer & Hirtz, *Icones Pleuroth.* 26, Part Two, Fig. 194., **S. mendozae**
Stelis translucens Luer & Hirtz, *Icones Pleuroth.* 29, Part Three, Fig. 298.
Stelis tricardium Lindl., *Icones Pleuroth.* 30, Part Four, Fig. 415.
Stelis tridactyloides Luer & Hirtz, *Icones Pleuroth.* 24, Part One, Fig. 86.
Stelis undulata Luer & Hirtz, *Icones Pleuroth.* 24, Part One, Fig. 87.
Stelis viridibrunnea Lehm. & Kraenzl., *Icones Pleuroth.* 24, Part One, Fig. 79., as *S. procera*
Stelis yanganensis Luer & Hirtz, *Icones Pleuroth.* 24, Part One, Fig. 91.; Part Three, Fig. 288. as similis.

KEY VII: The medium-size, caespitose species of *Stelis* sect. *Stelis* between 5 and 10 cm tall and with widely spread, more or less flat flowers.

1 Dorsal sepal 3-veined
2 Mature inflorescence shorter than the leaf
3 Leaf narrow, ca. 5 mm wide or less
4 Sepals deeply concave below the middle; lip type A, apiculate.....*S. calyptrata*
4' Sepals not concave below the middle; lip type B, not apiculate.....*S. braccata*
3' Leaf broadly elliptical, ca. 3 cm wide.....*S. discophylla*
2' Mature inflorescence as long as, or longer than the leaf
5 Sepals visibly ciliate or pubescent
6 Petals 1-veined
7 Peduncle elongated, compressed.....*S. complanata*
7' Peduncle short to long, terete
8 Lip with a short, sharp apiculum, type-A.....*S. mendozae*
8' Lip broadly obtuse or round without an apiculum
9 Pubescence with long, thin hairs; lip type-A.....*S. tanythrix*
9' Pubescence with short, thick hairs; lip type-B
10 Raceme to 20 cm long; lip shallowly discoid.....*S. polyantha*
10' Raceme to 10 cm long; lip concave above the middle.....*S. decurva*
6' Petals 3-veined
11 Floral bracts projecting beyond the flower
12 Floral bracts 5 mm long below; lip type-A, shallowly concave within the apex .....*S. loxensis*
12' Floral bracts 7 mm long below; lip type-B, concave above the middle .....*S. serra*
11' Floral bracts not projecting beyond the flower
13 Sepals pubescent or ciliate with long, thin hairs
14 Raceme lax, subflexuous; sepals long-ciliate; lip with protruding bar .....*S. majorella*
14' Raceme not lax and subflexuous; sepals not long-ciliate
15 Raceme crowded, strict, with overlapping flowers; lip type-A .....*S. adinostachya*
15' Raceme subdense, subflexuous
16 Lip elongated, protruding, type-B.....*S. stevensonii*
16' Lip not elongated and protruding, type-C
17 Lip with base shortly deflexed; column elongated with stigma entire .....*S. hirtella*
17' Lip with base deeply deflexed and pubescent; column short with the stigma bilobed.....*S. eublepharis*
13' Sepals with pubescence or cilia not long and thin
18 Mature leaves less than 8 mm wide; inflorescence to 30 cm long.....*S. exilis*
18' Mature leaves ca. 1 cm wide or more; inflorescence less than 30 cm long
19 Lip with a bar, callous on the dorsum (type-A)
20 Lateral sepals much shorter than the dorsal sepal; petals much larger than the lip .....*S. esmeraldae*
20' Lateral sepals as long as the dorsal sepal; petals about as large as the lip .....*S. azuayensis*

19' Lip with the bar broadly curved from apex to base, with a long glenion, the base pubescent (type-C)
21 Lip with the rounded margin apiculate
22 Sepals deeply cordate, free to near the base.....*S. tricardium*
22' Sepals ovate, connate in lower third.....*S. argentata*
21' Lip with the rounded margin smooth.....*S. viridibrunnea*
5' Sepals glabrous or microscopically pubescent
23 Petals 1-veined
24 Lip with apical margin entire
25 Sepals subcircular; anther cap proportionately large.....*S. copiosa*
25' Sepals ovate; anther cap not proportionately large
26 Sepals with sides revolute.....*S. caroliae*
26' Sepals with sides not revolute
27 Lip subdiscoid, modified type-B, with an elongated glenion.....
.....*S. barbimentosa*
27' Lip type-A with a short glenion.....*S. hallii*
24' Lip with an apiculum
28 Lip with an acute, triangular apiculum.....*S. exacta*
28' Lip with a short, obtuse apiculum
29 Sepals slightly concave with thickened margins.....*S. limbata*
29' Sepals not with thickened margins
30 Sepals elliptical, shallowly connate.....*S. liberalis*
30' Sepals broadly ovate, connate to near the middle
31 Sepals less than 1.5 mm long, usually white or pale yellow.....*S. pusilla*
31' Sepals ca. 2.5 mm long, usually dark purple.....*S. atrocaerulea*
23' Petals 3-veined
32 Peduncle as long as, or longer than the leaf
33 Inflorescence distantly flowered
34 Petals with a transverse callus; lip without an apiculum.....*S. dolichantha*
34 Petals without a transverse callus; lip with an apiculum.....*S. kentii*
33' Inflorescence lax to congested
35 Sepals shallowly connate, convex with recurved sides.....*S. tridactyloides*
35' Sepals not shallowly connate and convex with recurved sides
36 Petals with a transverse carina
37 Lip with a long-villous callus on the dorsum.....*S. hydroidea*
37' Lip without a long-villous callus on the dorsum
38 Sepals broader than long; lip with 3 calli on the dorsum.....
.....*S. peduncularis*
38' Sepals longer than broad; lip with 1 callus on the dorsum.....
.....*S. yanganensis*
36' Petals without a transverse carina
39 Raceme densely flowered; lip with a short, obtuse apiculum.....*S. bicolor*
39' Raceme loosely flowered; lip without an apiculum
40 Raceme flexuous with elongated pedicels; lip discoid, longer than wide
.....*S. jamesonii*
40' Raceme strict, not with elongated pedicels; lip wider than long.....
.....*S. viridibrunea*
32' Raceme elongate, but peduncle shorter than the leaf.

41 Raceme densely flowered, flowers mostly touching one another
42 Flowers facing in same direction
43 Lip type-A with a dorsal callus.....*S. imbricans*
43' Lip modifications of type-B with the dorsum pubescent
44 Lip not concave, the bar flat.....*S. alternans*
44' Lip shallowly concave within the margins, the bar convex.....*S. discolor*
42' Flowers facing in opposite directions
45 Sepals ca. 5 mm long .....*S. coracina*
45' Sepals ca. 2 mm long.....*S. aclyda*
41' Raceme lax to subdensely flowered, flowers not touching one another
46 Lateral sepals connate half their length with apices not diverging...*S. distans*
46' Lateral sepals variously connate with the apices diverging
47 Sepals deeply connate, broader than long
48 Leaf more than 1 cm wide; lip tricallous on the dorsum.....*S. mundula*
48' Leaf less than 0.5 cm wide; lip with a single callus on the dorsum.....
.....*S. purpurella*
47' Sepals not deeply connate and broader than long
49 Lip deeply excavate with obtusely angled margins.....*S. cavernula*
49' Lip not excavate with obtusely angled margins
50 Lip with a cavity defined by broad, incurved margins, the dorsum with a small, erect callus at the base.....*S. diversifolia*
50' Lip not like the above
51 Lip with the margin broad, half the length of the depth, with the bar potuberant.....*S. rotunda*
51' Lip not like the above.
52 Leaf linear, ca. 0.5 cm wide.....*S. lugoi*
52' Leaf elliptical, more than 0.5 cm wide.
53 Sepals 4-5 mm long and wide.....*S. translucens*
53' Sepals 2-2.5 mm long
54 Sepals with narrowly incurved margins.....*S. madsenii*
54' Sepals without narrowly incurved margins.....*S. yanganensis*
1' Dorsal sepal 5- or more-veined
55 Mature inflorescence shorter than the leaf
56 Plant pendent; dorsal sepal smaller than a lateral sepal.....*S. gemma*
56' Plant not pendent; dorsal sepal not smaller than a lateral sepal
57 Sepals ciliate-pubescent; lip with the apex broadly rounded.....*S. brachyrachis*
57' Sepals glabris; lip with the apex triangular, obtuse.....*S. espinosae*
55' Mature inflorescence longer than the leaf
58 Sepals ciliate
59 Floral bracts conspicuously large and undulate.....*S. undulata*
59' Floral bracts neither conspicuously large nor undulate
60 Sepals with narrowly thickened margins; lip apiculate.....*S. ciliolata*
60' Sepals not with narrowly thickened margins; lip not apiculate.....*S. impostor*
58' Sepals not ciliate
61 Sepals papular at the tips .....*S. papulina*
61' Sepals not papular at the tips

62 Lip minutely apiculate
63 Leaf broadly obovate, round at the apex.....*S. remifolia*
63' Leaf not broadly obovate and round at the apex
64 Sepals pubescent.....*S. argentata*
64' Sepals glabrous
65 Flowers congested and simultaneous.....*S. milagrensis*
65' Flowers distant, successive.....*S. bermejoënsis*
62' Lip smooth, not minutely apiculate
66 Leaves spathulate, round at the apex
67 Raceme flexuous, lax.....*S. lepidella*
67' Racene strict, congested with flowers in 2 opposite facing rows.....*S. janus*
66' Leaves elliptical; lip not concave behind a broad margin
68 Sepals recurved; lip deeply concave with the bar thin.....*S. cotyligera*
68' Sepals not recurved; lip concave with the bar thick
69 Rachis flexuous, loosely flowered.....*S. carta*
69' Rachis strict, densely flowered.....*S. muscifera*

The 80 species of *Stelis* sect. *Stelis* with more or less flat, widely expanded flowers and taller than ten centimeters are considered large, even if the plant is slender. They are listed below, followed by their appearance within the *Icones Pleurothallidinarum* series.

Stelis acaroi Luer & Hirtz, *Icones Pleuroth.* 26, Part Two, Fig. 128.
Stelis adrianae Luer, *Icones Pleuroth.* 24, Part One, Fig. 39.
Stelis aglochis Luer, new sp., *Icones Pleuroth.* 30, Part Four, Fig. 349.
Stelis amoena Luer & Hirtz, *Icones Pleuroth.* 24, Part One, Fig. 38., **S. ascendens**
Stelis andreettae Luer & Hirtz, *Icones Pleuroth.* 24, Part One, Fig. 39.
Stelis argentata Lindl., *Icones Pleuroth.* 30, Part Four, Fig. 353.
Stelis ascendens Lindl., *Icones Pleuroth.* 24, Part One, Fig. 38., as *S. amoena*
Stelis atroviolacea Rchb.f., *Icones Pleuroth.* 29, Part Three, Fig. 256., as *S. lacunata*
Stelis attenuata Lindl., *Icones Pleuroth.* 29, Part 3, Fig. 251., as *S. eumeces*
Stelis benzingii Luer & Hirtz, *Icones Pleuroth.* 24, Part One, Fig. 42.
Stelis bicarinata Luer & Hirtz, *Icones Pleuroth.* 24, Part One, Fig. 43.
Stelis braccata Rchb.f. & Warsz., *Icones Pleuroth.* 30, Part Four, Fig. 355.
Stelis calolemma Luer & Hirtz, *Icones Pleuroth.* 26, Part Two, Fig. 137.
Stelis caroliae Luer, *Icones Pleuroth.* 26, Part Two, Fig. 140.
Stelis cavernosa Luer & Hirtz, *Icones Pleuroth.* 26, Part Two, Fig. 141.
Stelis celsa Luer & Hirtz, *Icones Pleuroth.* 29, Part Three, Fig. 234.
Stelis ciliaris Lindl., *Icones Pleuroth.* 30, Part Four, Fig. 357.
Stelis congesta Luer & Hirtz, *Icones Pleuroth.* 24, Part One, Fig. 44.
Stelis coronaria Luer, *Icones Pleuroth.* 26, Part Two, Fig. 147.
Stelis crinita Luer & Hirtz, *Icones Pleuroth.* 29, Part Three, Fig. 239.
Stelis cuencana Schltr., *Icones Pleuroth.* 24, Part One, Fig. 53,, as *S. excavata.*
Stelis dalstroemii Luer, *Icones Pleuroth.* 24, Part One, Fig. 47.
Stelis delicata Luer & Hirtz, *Icones Pleuroth.* 29, Part Three, Fig. 243.
Stelis discolor Rchb.f., *Icones Pleuroth.* 30, Part Four, Fig. 363.
Stelis disticha Poepp. & Endl., *Icones Pleuroth.* 30, Part Four, Fig. 365.
Stelis elongatissima Luer & Hirtz, *Icones Pleuroth.* 24, Part One, Fig. 51.
Stelis eumeces Luer & Hirtz, *Icones Pleuroth.* 29, Part Three, Fig. 251., **S. attenuata**

Stelis eustylis Luer & Hirtz, *Icones Pleuroth.* 29, Part Three, Fig. 252.
Stelis exasperata Luer, *Icones Pleuroth.* 24, Part One, Fig. 52.
Stelis excavata Luer & Hirtz, *Icones Pleuroth.* 24, Part One, Fig. 53., **S. cuencana**
Stelis exquisita Luer, *Icones Pleuroth.* 30, Part Four, Fig. 369.
Stelis fabulosa Luer & Endara, *Icones Pleuroth.* 26, Part Two, Fig. 155.
Stelis flagellaris Luer & Hirtz, new sp., *Icones Pleuroth.* 30, Part Four, Fig. 370.
Stelis flexuosissima Luer & Hirtz, *Icones Pleuroth.* 24, Part One, Fig. 57.
Stelis floresii Luer & Hirtz, *Icones Pleuroth.* 24, Part One, Fig. 58.
Stelis formosa Luer & Hirtz, *Icones Pleuroth.* 24, Part One, Fig. 59.
Stelis gigantea Luer & Hirtz, *Icones Pleuroth.* 24, Part One, Fig. 60.. **S. gigantissima**
Stelis gigantissima Luer, *Icones Pleuroth.* 26, Part Two, Fig. 60., as *S. gigantea*
Stelis grandibracteata C.Schweinf., *Icones Pleuroth.* 30, Part Four, Fig. 374.
Stelis hallii Lindl., *Icones Pleuroth.* 29, Part Three, Fig. 291. as stormii; Part Four, Fig. 291a., 291b.
Stelis haltonii Luer, *Icones Pleuroth.* 26, Part Two, Fig. 158.
Stelis hylophila Rchb.f., *Icones Pleuroth.* 30, Part Four, Fig. 376.
Stelis immodica Luer & Hirtz, *Icones Pleuroth.* 26, Part Two, Fig. 161.
Stelis jamesonii Lindl., *Icones Pleuroth.* 30, Part Four, Fig. 378.
Stelis kuijtii Luer, *Icones Pleuroth.* 24, Part One, Fig. 65.
Stelis lacunata Luer & Endara, *Icones Pleuroth.* 29, Part Three, Fig. 256., **S. atroviolacea**
Stelis latimarginata Luer & Hirtz, *Icones Pleuroth.* 26, Part Two, Fig. 165.
Stelis limonensis Luer & Hirtz, *Icones Pleuroth.* 24, Part One, Fig. 66., **S. floresii**
Stelis litensis Luer & Hirtz, *Icones Pleuroth.* 29, Part Three, Fig. 261.
Stelis macrolemma Luer & Endara, *Icones Pleuroth.* 26, Part Two, Fig. 168.
Stelis mammillata Luer & Hirtz, *Icones Pleuroth.* 29, Part Three, Fig. 264.
Stelis medinae Luer & Hirtz, *Icones Pleuroth.* 26, Part Two, Fig. 169.
Stelis megalops Luer & Hirtz, *Icones Pleuroth.* 26, Part Two, Fig. 170.
Stelis membranacea Luer & Hirtz, *Icones Pleuroth.* 26, Part Two, Fig. 171.
Stelis micropetala Luer & Hirtz, *Icones Pleuroth.* 29, Part Three, Fig. 265.
Stelis millenaria Luer, *Icones Pleuroth.* 26, Part Two, Fig. 173.
Stelis muscifera Lindl., *Icones Pleuroth.* 30, Part Four, Fig. 394.
Stelis nanegalensis Lindl., *Icones Pleuroth.* 30, Part Four, Fig. 395.
Stelis ninguida Luer & Dalström, *Icones Pleuroth.* 29, Part Three, Fig. 272.
Stelis obtecta Luer & Hirtz, *Icones Pleuroth.* 29, Part Three, Fig. 273.
Stelis pachyphyta Luer & Hirtz, *Icones Pleuroth.* 24, Part One, Fig. 74.
Stelis pan Luer & Hirtz, new sp., *Icones Pleuroth.* 30, Part Four, Fig. 398.
Stelis pixie Luer & Hirtz, *Icones Pleuroth.* 26, Part Two, Fig. 181.
Stelis platystachya Garay & Dunst., *Icones Pleuroth.* 30, Part Four, Fig. 400.
Stelis pluriracemosa Luer & Hirtz, *Icones Pleuroth.* 29, Part Three, Fig. 239., **S. crinita**
Stelis polybotrya Lindl. *Icones Pleuroth.* 30, Part Four, Fig. 401.
Stelis polycarpica Luer & Hirtz, *Icones Pleuroth.* 24, Part One, Fig. 77.
Stelis portillae Luer & Hirtz, *Icones Pleuroth.* 26, Part Two, Fig. 183.
Stelis protracta Luer & Hirtz, *Icones Pleuroth.* 24, Part One, Fig. 80.
Stelis protuberans Luer & Hirtz, *Icones Pleuroth.* 29, Part Three, Fig. 281; Part Four, Fig. 281, revised.
Stelis purpurascens A.Rich. & Galeotti, *Icones Pleuroth.* 29, Part Three, Fig. 297., *S. thermatica*
Stelis ramosii Luer, new sp. *Icones Pleuroth.* 30, Part Four, Fig. 406.
Stelis riozunagensis Luer & Hirtz, *Icones Pleuroth.* 29, Part Three, Fig. 281., **S. cavernosa**

Stelis scalena Luer & Hirtz, *Icones Pleuroth.* 24, Part One, Fig. 84.
Stelis scitula Luer & Hirtz, *Icones Pleuroth.* 29, Part Three, Fig. 286.
Stelis serrulifera Luer & Hirtz, *Icones Pleuroth.* 24, Part One, Fig. 85.
Stelis strictissima Luer & Hirtz, *Icones Pleuroth.* 29, Part Three, Fig. 292.
Stelis superbiens Lindl., *Icones Pleuroth.* 30, Part Four, Fig. 414.
Stelis thamiostachya Luer & Endara, *Icones Pleuroth.* 29, Part Three, Fig. 296.
Stelis thermatica Luer & Dodson, *Icones Pleuroth.* 29, Part Three, Fig. 297., **S. purpurascens**
Stelis tridactylon Luer, *Icones Pleuroth.* 30, Part Four, Fig. 417.
Stelis triplex Luer & Hirtz, *Icones Pleuroth.* 29, Part Three, Fig. 301.
Stelis triplicata Lindl., *Icones Pleuroth.* 30, Part Four, Fig. 418.
Stelis tristyla Lindl.. *Icones Pleuroth.* 30, Part Four, Fig. 419.
Stelis undecimi Luer & F.Werner, *Icones Pleuroth.* 30, Part Four, Fig. 420.
Stelis villifera Luer, *Icones Pleuroth.* 24, Part One, Fig. 90.
Stelis wilhelmii Luer, *Icones Pleuroth.* 29, Part Three, Fig. 305.
Stelis ximenae Luer & Hirtz, *Icones Pleuroth.* 26, Part Two, Fig. 197.
Stelis xystophora Luer, *Icones Pleuroth.* 30, Part Four, Fig. 423.
Stelis zarumae Luer & Hirtz, *Icones Pleuroth.* 24, Part One, Fig. 92.

KEY VIII: The caespitose species of *Stelis* sect. *Stelis* more than 10 cm tall and with widely spread, more or less flat flowers.

1 Dorsal sepal 3-veined
2 Inflorescence shorter than the leaf
3 Sepals ciliate, papular, or pubescent
4 Petals 1-veined ..... *S. millinaria*
4' Petals 3- or more veined
5 Sepals fleshy, papillose..... *S. thamiostachya*
5' Sepals neither fleshy nor papillose
6 Lip with the bar longitudinally bicarinate..... *S. bicarinata*
6' Lip with the bar not longitudinally bicarinate
7 Leaf abruptly petiolate; lip tridentate with the middle lobe ltriangular..... ..... *S. crinita*
7' Leaf indistinctly petiolate; lip rounded at the apex..... *S. ximenae*
3' Sepals glabrous or micropscopically pubescent
8 Petals 1-veined
9 Sepals with sides revolute; petals cellular-papillose; lip with tall bar..... ..... *S. caroliae*
9' Sepals with sides not revolute; petals smooth; lip not with a tall bar
10 Leaf less than 1 cm wide; lip longer than wide..... *S. braccata*
10' Leaf more than 1 cm wide; lip wider than long..... *S. polybotrya*
8' Petals 3-veined
11 Leaf more than 3 cm wide..... *S. andreettae*
11' Leaf less than 1.5 cm wide
12 Lip with a huge glenion filling the proximal half of the lip..... *S. megalops*
12' Lip with a small glenion
13 Lip with a triangular apiculum..... *S. xystophora*
13' Lip with the margin broadl rounded..... *S. congesta*

2' Inflorescence as long as or longer than the leaf
14 Petals 1-veined
15 Sepals ciliate or pubescent
16 Sepals long-ciliate; lip broadly ovate.....*S. ciliaris*
16' Sepals pubescent, grossly to minutely
17 Inflorescence about as long as the leaf
18 Lip with apex triangular, acute.....*S. haltonii*
18' Lip with apex broadly rounded.....*S. wilhelmii*
17' Inflorescence much longer than the leaf
19 Inflorescence solitary with peduncle compressed.....*S. complanata*
19' Inflorescence 1 or more, peduncle not compressed
20 Inflorescence solitary; lateral sepals larger than the dorsal sepal; lip concave beyond a tall bar.....*S. scalena*
20' Inflorescence 1 or more; lateral sepals similar to the dorsal sepal; lip without a tall bar.....*S. strictissima*
15' Sepals glabrous
21 Inflorescence elongated with the peduncle far exceeding the leaf
22 Leaf obovate, obtuse; sepals narrowly trianglar.....*S. triplex*
22' Leaf linear, acute; sepals broadly ovate.....*S. elongatissima*
21' Inflorescence elongated with the peduncle not exceeding the leaf
23 Ramicaul shorter than the subpetiolate leaf; lip with tall bar.....*S. caroliae*
23' Ramicaul about as long as the petiolate leaf; lip with not with tall bar
24 Sepals markedly recurved.....*S. hylophila*
24' Sepals not recurved.....*S. hallii*
14' Petals 3-veined
25 Peduncle and rachis compressed.....*S. platystachya*
25' Peduncle and rachis terete
26 Floral bracts proportionately large, conspicuous
27 Floral bracts densely imbricating; sepals glabrous.....*S. disticha*
27' Floral bracts loosely imbricating; sepals pubescent
28 Lip deeply concave with glenion protruding.....*S. calolemma*
28' Lip shallowly concave with glenion not protruding.....*S. grandibracteata*
26' Floral bracts not large and conspicuous
29 Sepals narrowly oblong-ovate, shallowly connate
30 Sepals without revolute margins; lip apiculate
31 Sepals ca. 8 mm long; lip minutely and sharply apiculate.....*S. fabulosa*
31' Sepals ca. 3 mm long; lip with a triangular, protruding apiculum.....*S. exquisita*
30' Sepals with revolute margins; lip with margin entire
32 Rachis strict.....*S. tridactylon*
32' Rachis flexuous.....*S. flexuosissima*
29' Sepals not narrowly oblong-ovate and shallowly connate
33 Sepals pubescent
34 Sepals with pubescent hairs conspicuous or long
35 Lip short, subdiscoid with the glenion long, narrow.....*S. ascendens*
35' Lip neither short nor subdiscoid

36 Lip obtuse with the dorsum broadly callous and pubescent
37 Sepals with pubescent hairs thin, disheveled.....*S. villifera*
37' Sepals with pubescent hairs dense, straight.....*S. formosa*
36' Lip not obtuse, not with the dorsum callous and pubescent
38 Lip ovoid, subacute with thick margins with the glenion protruding, the dorsum with a cruciform callus.....*S. zarumae*
38' Lip rounded, deeply concave with thin margins, the dorsum with a single, rounded callus.....*S. atroviolacea*
34' Sepals with pubescent hairs short.
39 Sepals with a narrow, convex ridge below the middle that creates a complete circle like a "dam" surrounding the central apparatus.
40 Leaf less than 1.5 cm wide; lip with the margin minutely apiculate .....*S. coronaria*
40' Leaf 2.5-3 cm wide; lip with the margin entire.....*S. aglochis*
39' Sepals without a circular "dam" around the central apparatus
41 Lip with the margin minutely apiculate, type-C
42 Raceme subdensely flowered; sepals longer than 2 mm.....*S. argentata*
42' Raceme laxly flowered; sepals less than 1.75 mm long.....*S. protracta*
41' Lip with the margin entire, type-A
43 Lip short, subdiscoid with the glenion long, narrow.....*S. eustylis*
43' Lip not as above
44 Lip deeply excavate.....*S. cuencana*
44' Lip shallowly concave
45 Petals unguiculate without a transverse callus.....*S. obtecta*
45' Petals with a transverse callus, not unguiculate.....*S. floresii*
33' Sepals glabrous, microscopically, or inconspicuously pubescent
46 Plant large, ramicauls to 20 cm, leaves to 13 cm, inflorescence to 35 cm. .....*S. celsa*
46' Mature plant not as large as above
47 Rachis flexuous
48 Pedicel less than 1 mm long; petals with thick, minutely papillose margin; lip subquadrate, broader than long.....*S. exasperata*
48' Pedicel 3-7 mm long; petals thin and concave; lip very short, subdiscoid, not papillose, deeper than either long or wide.....*S. jamesonii*
47' Rachis strict
49 Sepals less than 2 mm long; petals ca. 0.5 mm long and wide..... .....*S. micropetala*
49' Sepals more than 2 mm long; petals ca. 1 mm or more wide
50 Petals with a broad, flat, minutely papillose margin.....*S. delicata*
50' Petals without a broad, flat, minutely papillose margin
51 Lip with a huge glenion filling proximal half of lip.....*S. megalops*
51' Lip without a huge glenion filling half the lip
52 Lip thinly discoid with a long glenion.....*S. discolor*
52' Lip thick, without a long glenion, type-A
53 Lip with the margin broad, rounded, with the bar protuberant..... .....*S. congesta*
53' Lip with the margin thin, with the bar not protuberant....*S. medinae*

1' Dorsal sepal 5- or more veined
54 Dorsal sepal 5-veined
55 Sepals ciliate, papillose, or pubescent
56 Lateral sepals suboblong, 180° opposite dorsal sepal, more or less parallel
57 Sepals densely short-pubescent.....*S. adrianae*
57' Sepals papillose.....*S. pan*
56' Lateral sepals not suboblong and parallel
58 Lip with the apex minutely 3-apiculate
59 Flowers distant from rachis, with ovaries 5 mm long.....*S. benzingii*
59' Flowers close to rachis, with ovaries 2 mm long.....*S. serrulifera*
58' Lip with the apex entire
60 Lip deeply concave, "inflated," with thin margin.....*S. ramosii*
60' Lip shallowly concave with dorsum callous, type-A.
61 Sepals convex with recurved margins
62 Sepals ca. 3 mm long; petals unguiculate.....*S. medinae*
62' Sepals ca. 6 mm long; petals sessile.....*S. acaroi*
61' Sepals with or without margins slightly recurved
63 Sepals broadly ovate, at least as wide as long.....*S. purpurascens*
63' Sepals ovate, slightly longer than wide
64 Raceme demsely flowered except toward the base; sepals and petals more or less triangular.....*S. attenuata*
64' Raceme subdensely flowered; sepals and petals broadly ovate.....*S. floresii*
55' Sepals glabrous, or inconspicuously very shortly pubescent
65 Inflorescence shorter, to as long as the leaf
66 Rachis flexuous, loosely flowered.....*S. litensis*
66' Rachis neither flexuous nor loosely flowered
67 Sepals ovate, ca. 2 mm long.....*S. pixie*
67' Sepals broadly ovate, ca. 5 mm long.....*S. ninguida*
65' Inflorescence distinctly longer than the leaf
68 Plant robust with thick, conduplicate leaves 4-7 cm wide.....*S. pachyphyta*
68' Plant not with thick, conduplicate leaves 4-7 cm wide
69 Floral bracts dilated, as large as the accompanying flower.....*S. macrolemma*
69' Floral bracts not as large as the accompanying flower
70 Lip with the apex acute
71 Raceme closely flowered, in 2 opposite facing ranks.....*S. dalstroemii*
71' Raceme subdensely flowered, not in 2 opposite facing ranks...*S. immodica*
70' Lip with the apex obtuse or rounded
72 Lip with the margin apiculate
73 Lip with a single apiculum.....*S. superbiens*
73' Lip triapiculate.....*S. nanegalensis*
72' Lip entire

74 Sepals transversely ovate, broader than long, deeply connate
75 Raceme congested; floral bracts conspicuous, up to 6 mm long low in the raceme.
76 Lip with a deep cavity replacing a glenion.....*S. cavernosa*
76' Lip not with a deep cavity replacing a glenion.
77 Leaf usually less than 3 cm wide.....*S. muscifera*
77' Leaf usually more than 3 cm wide.....*S. tristyla*
75' Raceme lax; floral bracts not conspicuous, 3 mm long low in the raceme .....*S. membranacea*
74' Sepals ovate, not broader than long
78 Leaf less than 3 cm wide
79 Leaf shorter than the ramicaul; lip with the bar protuberant..... .....*S. mammillata*
79' Leaf as long as, or longer than the ramicaul; lip not with the bar protuberant
80 Sepals abruptly convex and protuberant in the lower third..... .....*S. protuberans*
80' Sepals not abruptly convex in the lower third
81 Sepals convex with revolute margins.....*S. medinae*
81' Sepals not convex with revolute margins
82 Ramicauls stout, less than 3 cm long; raceme to 14 cm long; sepals not revolute, less than 4 mm long.....*S. scitula*
82' Ramicauls very slender, more than 6 cm long; raceme to 25 cm long; sepals revolute, 6 mm long.....*S. flagellaris*
78' Leaves 3-6 cm wide
83 Raceme subdensely flowered; dorsal sepal 6 mm long.....*S. kuijtii*
83' Raeme densely flowered; dorsal sepal 3 mm long.....*S. portillae*
54' Dorsal sepal 7- or more veined
84 Sepals transversely ovate, conspicuously broader than long, deeply connate
85 Lip with the margin wider than half the depth.....*S. latimarginata*
85' Lip not with the margin wider than half the depth.....*S. triplicata*
84' Sepals ovate, not deeply connate
86 Leaf immense, up to 20 cm wide.....*S. gigantissima*
86' Leaf up to 5 cm wide
87 Leaf ovate, acute, petiolate.....*S. polycarpica*
87' Leaf elliptical, obtuse, sessile.....*S. undecimi*

The 60 caespitose species of *Stelis* sect. *Stelis* with antrorse lateral sepals that are neither partially nor wholly connate into a synsepal constitute this key. They the various, intermediate species between *Stelis* sect. *Humboldtia* and *Stelis* sect. *Stelis*. Called a false synsepal, the sepals connive or are held forward between 90° and 145°, or incurve, resembling a synsepal. Because all degrees of expansion from 90° (straight forward) to 180° (completely expanded) occur, the decision into which key to place some species is often not obvious. For identification of such borderline flowers, consult both keys. The species are listed below,

Stelis abbreviata Luer & Hirtz, *Icones Pleuroth.* 29, Part Three, Fig. 222., **S. tenuilabris**
Stelis acrisepala Luer & Hirtz, *Icones Pleuroth.* 26, Part Two, Fig. 129.
Stelis acuminata Luer & Hirtz, *Icones Pleuroth.* 26, Part Two, Fig. 130.
Stelis acutula Luer & Hirtz, *Icones Pleuroth.* 24, Part One, Fig. 93.
Stelis anderssonii Luer & Endara, *Icones Pleuroth.* 29, Part Three, Fig. 226., **S. dalessandroi**
Stelis anolis Luer, *Icones Pleuroth.* 30, Part Four, Fig. 350.
Stelis aphidifera Luer & Dalström, *Icones Pleuroth.* 29, Part Three, Fig. 227.
Stelis aprica Lindl., *Icones Pleuroth.* 30, Part Four, Fig. 352.
Stelis buxiflora Luer & Hirtz, *Icones Pleuroth.* 26, Part Two, Fig. 198.
Stelis capsula Luer & Hirtz, *Icones Pleuroth.* 26, Part Two, Fig. 199.
Stelis clusaris Luer & Hirtz, *Icones Pleuroth.* 26, Part Two, Fig. 145.
Stelis coelochila Luer & Dalström, *Icones Pleuroth.* 26, Part Two, Fig. 200.
Stelis coleata Luer & Hirtz, *Icones Pleuroth.* 29, Part Three, Fig. 235.
Stelis coralloides Luer & Hirtz, *Icones Pleuroth.* 24, Part One, Fig. 94.
Stelis creodantha Luer & Hirtz, *Icones Pleuroth.* 29, Part Three, Fig. 238.
Stelis cryptopetala Luer & Hirtz, *Icones Pleuroth.* 29, Part Three, Fig. 242., **S. schomburgkii**
Stelis cyathiformis Luer & Hirtz, *Icones Pleuroth.* 26, Part Two, Fig. 149.
Stelis dalessandroi Luer, *Icones Pleuroth.* 24, Part One, Fig. 46.
Stelis dimidiata Luer & Hirtz, *Icones Pleuroth.* 29, Part Three, Fig. 244.
Stelis dodsonii Luer, *Icones Pleuroth.* 24, Part One, Fig. 50., **S. oblonga**
Stelis donaxopetata Luer, new sp., *Icones Pleuroth.* 30, Part Four, Fig. 366.
Stelis exigua Luer & Hirtz, *Icones Pleuroth.* 24, Part One, Fig. 95.
Stelis foveata Lindl., *Icones Pleuroth.* 30, Part Four, Fig. 371.
Stelis gentryi Luer & Dodson, *Icones Pleuroth.* 26, Part Two, Fig. 201.
Stelis glumacea Lindl., *Icones Pleuroth.* 30, Part Four, Fig. 373.
Stelis hymenantha Schltr., *Icones Pleuroth.* 30, Part Four, Fig. 377.
Stelis juncea Luer & Hirtz, *Icones Pleuroth.* 24, Part One, Fig. 97.
Stelis lamellata Lindl., *Icones Pleuroth.* 30, Part Four, Fig. 380.
Stelis lanuginosa Luer & Dalström, *Icones Pleuroth.* 26, Part Two, Fig. 164.
Stelis latimarginata Luer & Hirtz, *Icones Pleuroth.* 26, Part Two, Fig. 165.
Stelis lilliputana Luer & F.Werner, *Icones Pleuroth.* 29, Part Three, Fig. 259.
Stelis lindenii Lindl., *Icones Pleuroth.* 30, Part Four, Fig. 385.
Stelis macilenta Luer & Hirtz, *Icones Pleuroth.* 24, Part One, Fig. 69.
Stelis megalocephala Luer, *Icones Pleuroth.* 30, Part Four, Fig. 389.
Stelis minutissima Luer, *Icones Pleuroth.* 24, Part One, Fig. 71.
Stelis misera Luer & Hirtz, *Icones Pleuroth.* 29, Part Three, Fig. 267.
Stelis molaui Luer & Endara, *Icones Pleuroth.* 29, Part Three, Fig. 268.
Stelis molleturensis Luer & Hirtz, *Icones Pleuroth.* 26, Part Two, Fig. 202., **S. dalessandroi**
Stelis monicae Luer & Hirtz, *Icones Pleuroth.* 29, Part Three, Fig. 269.
Stelis moniligera Luer & Hirtz, *Icones Pleuroth.* 29, Part Three, Fig. 270.
Stelis mononeura Lindl., *Icones Pleuroth.* 30, Part Four, Fig. 391.
Stelis oblonga (Ruiz & Pav.) Willd., *Icones Pleuroth.* 24, Part One, Fig. 50., as *S. dodsonii*
Stelis ophioceps Luer & Hirtz, *Icones Pleuroth.* 29, Part Three, Fig. 274.
Stelis panguiensis Luer & Hirtz, *Icones Pleuroth.* 29, Part Three, Fig. 276.
Stelis petiolata Luer & Hirtz, *Icones Pleuroth.* 26, Part Two, Fig. 203.

Stelis physoglossa Luer & F.Werner, new sp., *Icones Pleuroth.* 30, Part Four, Fig. 399.
Stelis poculifera Luer & Hirtz, *Icones Pleuroth.* 24, Part One, Fig. 98.
Stelis porpax Rchb.f., Bonplandia 2: 23, 1854, *Icones Pleuroth.* 30, Part Four, Fig. 402.
Stelis potpourri Luer, new sp. *Icones Pleuroth.* 30, Part Four, Fig. 403.
Stelis pudens Luer, *Icones Pleuroth.* 30, Part Four, Fig. 404.
Stelis rimulata Luer & Hirtz, *Icones Pleuroth.* 26, Part Two, Fig. 188.
Stelis rostrata Luer, new sp., *Icones Pleuroth.* 30, Part Four, Fig. 408.
Stelis scaberula Luer & Hirtz, *Icones Pleuroth.* 29, Part Three, Fig. 285.
Stelis schomburgkii Schltr., *Icones Pleuroth.* 29, Part Three, Fig. 242., as *S. cryptopetala*
Stelis septicola Luer & Endara, *Icones Pleuroth.* 29, Part Three, Fig. 287.
Stelis spathulata Poepp. & Endl., *Icones Pleuroth.* 30, Part Four, Fig. 412.
Stelis striolata Lindl., *Icones Pleuroth.* 30, Part Four, Fig. 413.
Stelis supervivens Luer & Hirtz, *Icones Pleuroth.* 29, Part Three, Fig. 293.
Stelis tempestuosa Luer & Hirtz, *Icones Pleuroth.* 24, Part One, Fig. 100.
Stelis tenuilabris Lindl., *Icones Pleuroth.* 29, Part Three, Fig. 222., as *S. abbreviata*
Stelis tetramera Luer, *Icones Pleuroth.* 29, Part Three, Fig. 297.
Stelis trichoglottis Luer & Dodson, *Icones Pleuroth.* 29, Part Three, Fig. 299.
Stelis villosilabia Luer & Hirtz, new sp., *Icones Pleuroth.* 30, Part Four, Fig. 421.
Stelis viridula Luer, *Icones Pleuroth.* 30, Part Four, Fig. 422.
Stelis zigzag Luer & Hirtz, *Icones Pleuroth.* 26, Part Two, Fig. 205.
Stelis zothecula Luer, *Icones Pleuroth.* 30, Part Four, Fig. 424.

KEY IX: All the caespitose species of *Stelis* sect. *Stelis* with more or less antrorse lateral sepals regardless of size.

1 Mature plant less than 8 cm tall exclusive of the inflorescence
2 Inflorescence shorter than, to as long as the leaf
3 Petals 1-veined; lip with apex acute or subacute
4 Lip triangular, acute, concave, without bar or callus.....*S. porpax*
4' Lip with apex acute, triangular or apiculate, with bar or callus
5 Sepals scurfy-papillose.....*S. scaberula*
5' Sepals not scurfy-papillose
6 Floral bracts proportionately large, covering the ovary and basal part of the flower .....*S. spathulata*
6' Floral bracts not covering the ovary and basal part of the flower .....*S, hymenantha*
3' Petals 3-veined; lip with apex subacute or obtuse
7 Dorsal sepal circular, much larger than the lateral sepals.....*S. megalocephala*
7' Dorsal sepal not circular and not proportionately large
8 Ramicaul stout with loose, tubular sheaths.....*S. lilliputana*
8' Ramicaul slender with close, tubular sheaths.....*S. aphidifera*
2' Inflorescence longer than the leaf
9 Petals 1-veined
10 Sepals concave, connivent into a subspherical flower.....*S. supervivens*
10' Sepals not connivent into a subspherical flower
11 Sepals ciliate, pubescent or pusticulate within
12 Sepals pubescent within; lip broader than long.....*S. viridula*
12' Sepals ciliate or pusticulate; lip longer than broad

13' Sepals ciliate within margin..... *S. minutissima*
13' Sepals diffusely pusticulate..... *S. rostrata*
11' Sepals glabrous
14 Lip subquadrate
15 Sepals free nearly to base; lip with apex abruptly triangular-apiculate.....
..... *S. acutula*
15' Sepals connate to near middle; lip with apex broadly rounded-truncate.....
..... *S. villosilabia*
14' Lip not subquadrate
16 Leaves 3-5 cm long; lip ovate, acute..... *S. coralloides*
16' Leaves 1-1.5 cm long; lip obovate, obtuse..... *S. exigua*
9' Petals 3-veined
17 Sepals long-pubescent within
18 Lateral sepals longer than the dorsal sepal, with only scattered hairs; lip with small, erect, dorsal callus ..... *S. ophioceps*
18' Lateral sepals as long as the dorsal sepal, densely pubescent; lip deeply concave without a dorsal callus..... *S. physoglossa*
17' Sepals glabrous to minutely short-pubescent within
19 Plant less than 3 cm tall; inflorescence to 7 cm long..... *S. dimidiata*
19' Plant more than 5 cm tall; inflorescence to 10 cm or more long
20 Lip subquadrate with a minute glenion, the dorsum with a low, broad callus
..... *S. capsula*
20' Lip suborbicular with a long glenion, the dorsum shortly pubescent
..... *S. moniligera*
1' Mature plant more than 8 cm tall exclusive of the inflorescence
21 Dorsal sepal 3-veined
22 Inflorescence shorter than the leaf
23 Petals 1-veined
24 Inflorescences less than half as long as the leaf..... *S. tenuilabris*
24' Inflorescences at least half as long as the leaf
25 Raceme flexuous..... *S. tempestuosa*
25' Raceme not flexuous
26 Sepals narrow, about twice longer than wide; lip obtuse..... *S. rimulata*
26' Sepals broad, about as long as wide; lip acute or obtuse
27 Sepals shortly pubescent; lip with acute, triangular apex..... *S. panguiensis*
27' Sepals glabrous
28 Lip with apex narrow, abruptly triangular, acute..... *S. aprica*
28' Lip with apex obtuse, concave..... *S. zothecula*
23' Petals 3-veined
29 Lip with a short, acuminate apiculum..... *S. gentryi*
29' Lip without a short, acuminate apiculum
30 All 3 sepals concave, connivent, pubescent within..... *S. misera*
30' All 3 sepals not concave, not connivent, not pubescent within
31 Raceme flexuous ..... *S. zigzag*
31' Raceme not flexuous

32 Leaf less than 1.5 cm wide; lip with a short, blunt apiculum ..... *S. schomburgkii*
32' Leaf at least 2 cm wide; lip with a short triangular apex..... *S. dalessandroi*
22' Inflorescence as long as, or longer than the leaf
33 Petals 1-veined
34 Sepals papular or pubescent
35 Sepals papular, 1 mm long and wide; lip longer than wide..... *S. septicola*
35' Sepals pubescent, more than 1 mm long; lip not longer than wide ..... *S. mononeura*
34' Sepals glabrous
36 Floral bract large, covering pedicel, ovary and base of flower..... *S. spathulata*
36' Floral bract not covering pedicel, ovary and base of flower
37 Petals truncate with a thick, central, external callus..... *S. lamellata*
37' Petals truncate without a thick, external callus
38 Sepals subacute; lip saccate with apex triangular, obtuse..... *S. poculifera*
38' Sepals obtuse to rounded; lip concave with a short, obtuse apiculum ..... *S. macilenta*
33' Petals 3-veined
39 Sepals ciliate-pubescent
40 Sepals concave, long-pubescent within
41 Lip apiculate..... *S. trichoglottis*
41' Lip not apiculate ..... *S. coelochila*
40' Sepals not concave and long-pubescent within
42 Leaf acute, shorter than the ramicaul; lip round at the the apex..... *S. molaui*
42' Leaf not shorter than the ramicaul
43 Lip type-B with a short, sharp apiculum
44 Leaf oblong to ovate, obtuse, petiolate..... *S. oblonga*
44' Leaf narrowly elliptical, cuneate below..... *S. schomburgkii*
43' Lip without a short, sharp apiculum
45 Lip concave, rounded at the apex
46 Lip with a large, low callus with thickened margin..... *S. pudens*
46' Lip with the bar thick, cleft..... *S. cyathiformis*
45' Lip concave with the apex obtuse or triangular.
47 Petals 2.8 mm long, 2.5 mm wide..... *S. donaxopetala*
47' Petals less than 1 mm long, ca. 1 mm wide
48 Sepals densely long-pubescent; lip with apex acute, triangular ..... *S. lanuginosa*
48' Sepals short-pubescent; lip with apex broad, obtuse, triangular ..... *S. monicae*
39' Sepals glabrous or microscopically pubescent
49 Ramicaul ca. a third as long as a narrowly obovate leaf; floral bracts large, overlapping; sepals microscopically pubescent within..... *S. clusaris*
49' Not as above
50 Ramicauls slender, about twice as long as the leaf
51 Lateral sepals obtuse, lip type B..... *S. juncea*
51' Lateral sepals acute, lip type A..... *S. potpourri*

50' Ramicauls not slender and twice as long as the leaf
52 Leaf elliptical; lip with pubescent callus, round at the apex
53 Inflorescence 1 racene; petiole 2-3 cm long.....*S. petiolata*
53' Inflorescence 2-3 racenes; petiole 1-1.5 cm long.....*S. buxiflora*
52' Not with the above combination
54 Lip type-A, with dorsum callous
55 Leaf narrowly ovate, acute.....*S. creodantha*
55' Leaf elliptical
56 Leaf narrowly elliptical; raceme solitary; sepals obtuse, shortly acuminate .....*S. acuminata*
56' Leaf elliptical; racemes 3-4; sepals obtuse.....*S. striolata*
54' Lip type-B, with dorsum not tricallous
57 Lip subquadrate, truncate, with an obtuse apiculum
58 Lip deeply excavate.....*S. foveata*
58' Lip not deeply excavate.....*S. schomburgkii*
57' Lip subquadrate, tridentate, with an acute apiculum.....*S. juncea*
21' Dorsal sepal 5- or more-veined
59 Inflorescence shorter than the leaf; dorsal sepal 5 mm long and wide.....*S. coleata*
59' Inflorescence longer than the leaf
60 Dorsal sepal 7-veined
61 Lip with the margin wider than half the depth.....*S. latimarginata*
61' Lip not with the margin wider than half the depth; pollinia 4.....*S. tetramera*
60' Dorsal sepal 5-veined
62 Floral bracts 7-10 mm long, projecting beyond the flower.....*S. glumacea*
62' Floral bracts 3-5 mm long, not projecting beyond the flower
63 Sepals long-acuminate; petals longer than wide.....*S. anolis*
63' Sepals not acuminate; petals wider than long
64 Sepals narrowly ovate, free to near the base.....*S. acrisepala*
64' Sepals broadly ovate, connate to near the middle.....*S. lindenii*

This final key contains all 54 of the non-caespitose species of *Stelis* sect. *Stelis* with similar sepals that are either expanded or antrorse. It includes species with a prolific habit (ramicauls producing another ramicaul from the apex near or at the base of the leaf, or from the base of the ramicaul), or a repent habit (ramicauls produced at intervals along a creeping or erect rhizome). Both repent and prolific habits can produce a scandent habit.

Stelis aclyda Luer & Hirtz, new sp. *Icones Pleuroth.* 30, Part Four, Fig. 348.
Stelis acuifera Lindl., *Icones Pleuroth.* 24, Part One, Fig. 88., as *S. uxoria*
Stelis amabilis Luer & Hirtz, *Icones Pleuroth.* 29, Part Three, Fig. 225.
Stelis ascendens Lindl., *Icones Pleuroth.* 24, Part One, Fig. 38., as *S. amoena*
Stelis asplundii Luer & Endara, *Icones Pleuroth.* 29, Part Three, Fig. 228.
Stelis atra Lindl., *Icones Pleuroth.* 26, Part Two, Fig. 152. as *S. epibator*
Stelis barbellata Luer & Hirtz, *Icones Pleuroth.* 24, Part One, Fig. 41.
Stelis carchica Luer & Hirtz, *Icones Pleuroth.* 29, Part Three, Fig. 232.
Stelis cingens Luer & Hirtz, *Icones Pleuroth.* 26, Part Two, Fig. 144.
Stelis columnaris Lindl., *Icones Pleuroth.* 30, Part Four, Fig. 359.
Stelis cryophila Luer & Hirtz, *Icones Pleuroth.* 29, Part Three, Fig. 241.

Stelis debilis Luer, *Icones Pleuroth.* 30, Part Four, Fig. 361.
Stelis declivis (Lindl.) Luer, *Icones Pleuroth.* 30, Part Four, Fig. 362.
Stelis dirigens Luer & Hirtz, *Icones Pleuroth.* 24, Part One, Fig. 48.
Stelis discophylla Luer & Hirtz, new sp. *Icones Pleuroth.* 30, Part Four, Fig. 364.
Stelis dissimulans Luer & Dodson, *Icones Pleuroth.* 29, Part Three, Fig. 245.
Stelis drewii Luer & Endara, *Icones Pleuroth.* 29, Part Three, Fig. 248.
Stelis epibator Luer & Hirtz, *Icones Pleuroth.* 26, Part Two, Fig. 152., **S. atra**
Stelis falcifera Luer & Hirtz, *Icones Pleuroth.* 24, Part One, Fig. 55.
Stelis ferax Luer & Hirtz, *Icones Pleuroth.* 24, Part One, Fig. 56., **S. tridentata**
Stelis hirtzii Luer, *Icones Pleuroth.* 24, Part One, Fig. 1.
Stelis hispida Luer & Dalström, *Icones Pleuroth.* 24, Part One, Fig. 96.
Stelis hoeijeri Luer & Dalström, *Icones Pleuroth.* 24, Part One, Fig. 63.
Stelis jamesonii Lindl. *Icones Pleuroth.* 30, Part Four, Fig. 378.
Stelis lamellata Lindl., *Icones Pleuroth.* 30, Part Four, Fig. 380.
Stelis lanata Lindl., *Icones Pleuroth.* 30, Part Four, Fig. 381.
Stelis lancea Lindl., *Icones Pleuroth.* 30, Part Four, Fig. 382.
Stelis lanceolata (Ruiz & Pav.) Willd., *Icones Pleuroth.* 30, Part Four, Fig. 383.
Stelis lindenii Lindl., *Icones Pleuroth.* 30, Part Four, Fig. 385.
Stelis loejtnantii Luer & Endara, *Icones Pleuroth.* 26, Part Two, Fig. 167.
Stelis lorenae Luer, *Icones Pleuroth.* 29, Part Three, Fig. 262.
Stelis morganii Dodson & Garay, *Icones Pleuroth.* 30, Part Four, Fig. 393.
Stelis nambijae Luer & Hirtz, *Icones Pleuroth.* 26, Part Two, Fig. 175.
Stelis nepotula Luer & Hirtz, *Icones Pleuroth.* 24, Part One, Fig. 72.
Stelis nikiae Luer & Hirtz, *Icones Pleuroth.* 29, Part Three, Fig. 271.
Stelis oblongifolia Lindl., *Icones Pleuroth.* 30, Part Four, Fig. 396.
Stelis oreada Luer & Endara, new sp., *Icones Pleuroth.* 30, Part Four, Fig. 397.
Stelis paniculata Luer & Hirtz, *Icones Pleuroth.* 26, Part Two, Fig. 177.
Stelis pisinna Luer & Hirtz, *Icones Pleuroth.* 26, Part Two, Fig. 180.
Stelis prolata Luer & Hirtz, *Icones Pleuroth.* 26, Part Two, Fig. 185.
Stelis prolificosa Luer & Hirtz, *Icones Pleuroth.* 29, Part Three, Fig. 280.
Stelis pubipetala Luer & Hirtz, *Icones Pleuroth.* 24, Part One, Fig. 81.
Stelis pusilla Kunth, *Icones Pleuroth.* 30, Part Four, Fig. 405., 405a., 405b.
Stelis ramificans Luer & Endara, *Icones Pleuroth.* 29, Part Three, Fig. 282.
Stelis ramulosa Luer & Dalström, *Icones Pleuroth.* 26, Part Two, Fig. 186.
Stelis repens Cogn., *Icones Pleuroth.* 30, Part Four, Fig. 407.
Stelis satyrella Luer & Hirtz, new sp., *Icones Pleuroth.* 30, Part Four, Fig. 409.
Stelis satyrica Luer & Hirtz, *Icones Pleuroth.* 29, Part Three, Fig. 284., **S. ramulosa**
Stelis scansor Rchb.f., *Icones Pleuroth.* 30, Part Four, Fig. 410.
Stelis secunda Luer & Dalström, *Icones Pleuroth.* 26, Part Two, Fig. 191.
Stelis septella Luer, *Icones Pleuroth.* 26, Part Two, Fig. 192.
Stelis soricina Luer & Hirtz, *Icones Pleuroth.* 29, Part Three, Fig. 289.
Stelis subtilis Luer & Dalström, *Icones Pleuroth.* 26, Part Two, Fig. 204.
Stelis tempestuosa Luer & Hirtz, *Icones Pleuroth.* 24, Part One, Fig. 100.
Stelis trichorrachis Rchb.f., *Icones Pleuroth.* 30, Part Four, Fig. 416.
Stelis tridentata Lindl., *Icones Pleuroth.* 24, Part One, Fig. 56., as *S. ferax*
Stelis tropex Luer & Endara, *Icones Pleuroth.* 29, Part Three, Fig. 302.
Stelis uxoria Luer & Hirtz, *Icones Pleuroth.* 24, Part One, Fig. 88., **S. acuifera**

KEY X: The non-caespitose species of *Stelis* sect. *Stelis* regardless of size, with antrorse lateral sepals.

1 Habit repent, ascending, or scandent, the ramicauls produced from a rhizome or from the base of a ramicaul
2 Dorsal sepal 3-veined
3 Leaves less than 5 cm long
4 Inflorescence short, to about as long as the leaf
5 Leaves elliptical-ovte, overlapping
6 Rhizome erect ..... *S. morganii*
6' Rhizome prostrate ..... *S. discophylla*
5' Leaves elliptical, not overlapping
7 Petals 1-veined; raceme not congested in 2 opposite ranks
8 Petals thin; lip with apex thin and deeply concave with bar prominent near the middle ..... *S. scansor*
8' Petals thick; lip not thin and deeply concave
9 Lip shallowly concave with a low, pubescent bar at the base, modified type-B ..... *S. oreada*
9' Lip thick, type-A ..... *S. neopotula*
7' Petals 3-veined; raceme congested in 2 opposite ranks..... *S. aclyda*
4' Inflorescence longer than the leaf
10 Petals 1-veined
11 Ramicaul 1-2 mm long; leaf 10-15 mm long..... *S. paniculata*
11' Ramicaul more than 10 mm long; leaf more than 15 mm long
12 Lip with the tip broadly rounded, concave, with brush-like patch of hairs articulating with brush-like hairs at base of column..... *S. declivis*
12' Lip with the tip not broadly rounded, without a brush-like patch of hairs
13 Lip with a triangular middle lobe..... *S. repens*
13' Lip with a minute, or obscure apiculum
14 Raceme secund; dorsal sepal ca. 3.5 mm long..... *S. secunda*
14' Raceme distichous; dorsal sepal 1-1.5 mm long
15 Sepals pubescent ..... *S. pisinna*
15' Sepals glabrous ..... *S. pusilla*
10' Petals 3-veined
16 Lip thin, shallowly concave, oblong-obovate, broadly rounded at the apex ..... *S. ramulosa*
16' Lip thick with bar and glenion, neither concave nor broadly rounded at the apex
17 Rhizome thin, slender, 3-13 mm long between ramicauls..... *S. debilis*
17' Rhizome thick, stout
18 Rhizome 1-5 mm long between ramicauls..... *S. septella*
18' Rhizome 15-30 mm long between ramicauls..... *S. prolata*
3' Leaves more than 5 cm long
19 Inflorescence shorter than the leaf
20 Petals 1-veined
21 Lateral sepals antrorse into a synsepal..... *S. tempestuosa*
21' Lateral sepals expanded ..... *S. carchica*
20' Petals 3-veined

22 Rachis flexuous; lip minutely apiculate.....*S. trichorachis*
22' Rachis not flexuous; lip not apiculate.....*S. atra*
19' Inflorescence longer than the leaf
23 Petals 1-veined
24 Lip minutely apiculate, not shallowly concave
25 Sepals papillose; lip minutely but sharply apiculate.....*S. tropex*
25' Sepals glabrous; lip bluntly apiculate.....*S pusilla*
24' Lip not apiculate, modifictions of type-B
26 Lip short, subdiscoid, about as wide as deep
27 Lip obtuse at the apex, concave before a low, pubescent bar at the base
.....*S. oreada*
27' Lip broadly rounded at the apex, without a pubescent bar at the base
.....*S. subtilis*
26' Lip longer than wide, concave above a thick cleft bar above the middle
28 Sepals connate near the middle into a saccate tube.....*S. lamellata*
28' Sepals connate near the base, not into a saccate tube.....*S. tempestuosa*
23' Petals 3-veined
29 Sepals papillose or grossly pubescent within
30 Sepals papillose within; column elongated
31 Raceme densely flowered; lip with the bar reclining.....*S. columnaris*
31' Raceme distantly flowered; lip with the bar erect.....*S. hirtzii*
30' Sepals pubescent within; column not elongated
32 Sepals concave, connivent, connate basally.....*S. lanata*
32' Sepals not concave and connivent
33 Lip apiculate
34 Leaves acuminate; lip with minute, sharp apiculum.....*S. tridentata*
34' Leaves not acuminate; lip with minute, obtuse apiculum.....*S. loejtnantii*
33' Lip without an apiculum
35 Lip with large callus on margin of bar; column proportionately elongated with large anther and stigmatic lobes.....*S. lanceolata*
35' Lip without a callus on the bar
36 Lip shallowly concave with a glenion.....*S. ascendens*
36' Lip with the bar deeply excavate.....*S. hispida*
29' Sepals glabrous to microscopically pubescent within
37 Lip type-B, longer than wide.....*S. ramificans*
37' Lip type-A, wider than long
38 Floral bracts 3 mm long, concave, obtuse.....*S. cingens*
38' Floral bracts 1.5 mm long, acute.....*S. lancea*
2' Dorsal sepal 5- or more-veined
39 Leaves petiolate, less than 10 cm long
40 Inflorescence short, to about as long as the leaf; lip with a tall, antrorse bar.....
.....*S. nambijae*
40' Inflorescence longer than the leaf; lip without a tall bar
41 Rhizome very slender, elongated; floral bracts and spathe conspicuous
.....*S. lorenae*
41' Rhizome stout, not elongated; floral bracts and spathe not conspicuous

42 Rhizome erect; lip acutely apiculate.....*S. dirigens*
42' Rhizome prostrate or ascending; lip not apiculate
43 Sepals ca. 2 mm long, thickly fleshy.....*S. lindenii*
43' Sepals ca. 4 mm long, not thickly fleshy.....*S. drewii*
39' Leaves petiolate, ca. 10 cm long or longer
44 Inflorescence short, to about as long as the leaf
45 Petals glabrous; lip with a low, rounded callus on the dorsum.....*S. amabilis*
45' Petals minutely densely pubescent; lip with 3 calli on the dorsum
.....*S. pubipetala*
44' Inflorescence longer than the leaf
46 Sepals less than 5 mm long, thickly fleshy.....*S. lindenii*
46' Sepals 5-10 mm long, not thickly fleshy.....*S. acuifera*
1' Habit prolific, ramicauls produced from the apex of a ramicaul
47 Dorsal sepal 5-veined
48 Flowers overlapping, hugging the rachis.....*S. hoeijeri*
48' Flowers not overlapping, hugging the rachis.....*S. nikiae*
47' Dorsal sepal 3-veined
49 Spathe 1.5-2 cm long, acute, prominent.....*S. falcifera*
49' Spathe inconspicuous
50 Lip discoid, wider than long, without a glenion
51 Leaves less than 2.5 cm long; raceme to 4 cm long.....*S. ramulosa*
51' Leaves 3-8 cm long; raceme 5-15 cm long.....*S. jamesonii*
50' Lip with a bar and glenion, not discoid
52 Petals with the apex acuminate
53 Petals shortly acuminate; lip concave above the middle.....*S. dissimulans*
53' Petals long-acuminate; lip concave from below the middle.....*S. barbellata*
52' Petals with the apex obtuse
54 Raceme densely flowered with conspicuous floral bracts and flowers overlapping
55 Leaves 3-4 cm long; ramicauls 3-4 cm long.....*S. cryophila*
55' Leaves 8-12 cm long; ramicauls 8-18 cm long.....*S. soricina*
54' Raceme subdensely flowered with inconspicuous floral bracts not overlapping
56 Inflorescence not longer than the leaf.....*S. satyrella*
56' Inflorescence much longer than the leaf
57 Leaves elliptical, acute.....*S. asplundii*
57' Leaves elliptical-oblong, obtuse
58 Rachis flexuous, laxly flowered; sepals margined.....*S. prolificosa*
58' Rachis strict, subdensely flowered; sepals not margined....*S. oblongifolia*

348. **Stelis aclyda** Luer & Hirtz, sp. nov.

Ety.: From the Greek *aclydis*, "of a small javelin," referring to the narrow shape of the leaf.

Planta parva caespitosa vel brevirepens, racemo congestissimo disticho folio angustissime elliptico acuto plus minusve aequilongo, sepalis late ovatis obtusis, petalis transverse latissime obovatis, labello breve apice rotundo ad dorsum calloso.

Plant small, epiphytic, both caespitose and repent, rhizome as thick as the ramicaul. Ramicauls erect, slender, 2-2.5 cm long, enclosed by a loose, tubular sheaths below the middle and another sheath at the base. **Leaf** erect, coriaceous, narrowly elliptical, acute, 3-3.5 cm long, less than 0.5 cm wide, gradually narrowed below to the base. **Inflorescence** a slender, strict, erect, distichous, densely, many-flowered raceme, with most flowers open simultaneously and facing in opposite directions, 3-3.5 cm long including the peduncle 8 mm long, spathe negligible, from an annulus below the apex of the ramicaul; floral bracts broadly infundibular, obtuse, 1.5 mm long; pedicels 0.5 mm long; ovary 1 mm long; flower color unknown, **sepals** glabrous, broadly ovate, obtuse, the dorsal sepal 2 mm long, 1.8 mm wide, 3-veined, connate less than 1 mm to the laterals, the lateral sepals 1.6 mm long, 1.6 mm wide, 3-veined; **petals** transversely obovate, with the apex broadly rounded, thickened on the margin, 0.5 mm long, 1.3 mm wide expanded, 3-veined; **lip** subovoid, 0.3 mm long, 0.6 mm wide, 0.6 mm deep, the margin broadly thickened, rounded, very shallowly concave within, the bar bimammilate without a visible glenion, the dorsum sloping downward with a single, round callous, the base broadly truncate, hinged to the base of the column; **column** stout, 0.5 mm long, 0.6 mm wide, the foot obsolescent, the anther and bilobed stigma apical.

ECUADOR: **Carchi**: Río Blanco, along new road between Carolina and Chical, alt. 1800 m, 10 Apr. 2007, *A. Hirtz, L. Grobler et al. 9220* (Holotype of *S. aclyda*: MO), C. Luer illustr. 21274.

This little species is characterized by narrowly elliptical leaves and an equally long and slender inflorescence with a tightly packed, double-rowed raceme of opposite-facing flowers. The flowers are not extraordinary with obtuse sepals; transversely obovate petals; and a short lip with a broad, round margin, a bimammilate bar without an obvious glenion, and an acutely decurved dorsum with a single, round callus.

88. **Stelis acuifera** Lindl., Folia Orchid. *Stelis* 12, no. 90, 1858,

Ety.: From the Latin *acuti-*, the combining form from *acutus*, "meaning something sharply pointed," and *-fer*, "bearing," referring to the lip. In his original description, Lindley (1858: 12) commented "A subulate process rising from the hollow of the lip is very remarkable." However, this feature is not present on the lip of the type-specimen.

Syn.: *Stelis uxoria* Luer & Hirtz, Monogr. Syst. Bot. Missouri Bot. Gard. 88: 62, 2002.
Ety.: Named for a co-collector of the species, my loving wife.

COLOMBIA: **Cundinamarca**: "Bogota," *Moritz s.n.* (Holotype of *S. acuifera*: K).
ECUADOR: **Tungurahua**: alt. 8,000 ft., May 1858, *R. Spruce 5386* (W).
Carchi: Tulcán, trail Pun to Río Chimbal, alt. 2926 m, 14 Aug. 1935, *Ynes Mexia 7611* (AMES).
Sucumbíos: terrestrial on road shoulder, between Tulcán and El Carmelo, alt. 3200 m, 6 Apr. 1985, *C. Luer, J. Luer, A. Hirtz & W. Flores 11073* (holotype of *S. uxoria*: MO); between El Playón de San Francisco and El Carmelo, alt. 3000 m, 14 Apr. 1979, *B. Løjtnant, U. Molau & M. Madison 12521* (AAU, GB); above El Carmelo, alt. 3200 m, 17 May 1981, *C. Luer, J. Luer & A. Hirtz 6267* (SEL); west of pass between Tulcán and Maldonado, alt. 2450 m, 16 Mar. 1991, *C. Luer, A. Hirtz et al. 15081* (MO); scrub forest north of El Playón, alt. 3100 m, 20 Mar. 1991, *C. Luer, J. Luer & A. Hirtz 15194, 15195, 15200* (MO).

Stelis acuifera was illustrated in *Icones Pleurothallidinae* 24, Part One, Fig. 88., as *S. uxoria* Luer & Hirtz. It is a large, robust species locally abundant at high altitudes in northern Ecuador. It was first described from the Eastern Cordillera of Colombia from a collection by Moritz a century and a half ago. It is characterized by a thick, repent rhizome with tall, stout ramicauls with large, elliptical leaves. Several to many flowers are produced simultaneously as anthesis ascends in a lengthening raceme. The flowers are variable in color and size, the flowers of some collections having dimensions double those of others. The sepals are broadly ovate, obtuse and five-, seven-, or rarely nine-veined. The petals are transverse with a thick, rounded margin, commonly with four veins. The lip is type-A, with a broadly rounded apex without a subulate process as noted by Lindley.

349. **Stelis aglochis** Luer, sp. nov.

Ety.: From the Greek, *aglochin*, "without a point," referring to an absent labellar apiculum.

Species haec *Stelidis argentatae* Lindl. affinis, sed habitu grande, foliis latis longipetiolatis, sepalis non pubescentibus et labelli margine sine apiculo differt.

Plant medium in size to large, epiphytic, densely caespitose; roots very slender. Ramicauls erect, slender, fascicled, 4-6 cm long, enclosed by a loose, tubular sheath from below the middle and 2-3 other sheaths at the base. **Leaf** erect, coriaceous, 12-17 cm long including a petiole, the blade elliptical, 2.5-3 cm wide, subacute to obtuse, long-petiolate, cuneate below into the slender petiole 4-5.5 cm long. **Inflorescence** an erect, lax, subflexuous, many-flowered raceme with many flowers open simultaneously, to 15-17 cm long including the peduncle 3-6 cm long, subtended by a slender spathe 1.3-1.5 cm long, from an annulus below the apex of the ramicaul; floral bracts infundibular, oblique, acute, 1.5 mm long; pedicels 1.5 mm long; ovary 1.5 mm long; **sepals** widely spread with recurved margins, concave around the central apparatus, dark red-violet, microscopically cellular-pubescent, the dorsal sepal broadly ovate, obtuse, 3 mm long, 3.3 mm wide, 3-veined, connate below the middle to the lateral sepals, the laterals broadly ovate, obtuse, 3 mm long, 3 mm wide, 3-veined; **petals** transversely oblong, concave, 0.6 mm long, 1.5 mm wide, 3-veined, the apex broadly rounded with a thickened margin; **lip** transversely oblong, 0.6 mm long, 1 mm wide, 0.6 mm deep, the apex with a broad, obtuse margin, shallowly concave within, the bar convex with a longitudinal, shallowly cleft glenion continuing downward from a thickened, microscopically pubescent callus on the dorsum, the base truncate, hinged to the base of the column; **column** semiterete, 1 mm long, 1 mm wide, the foot obsolescent, the anther and the stigma apical, the stigma bilobed.

ECUADOR: **Cotopaxi**: La Maná, Los Ilinizas, Cerro Guadual Grande, alt. 1400 m, 19 July 2003, *P. Silverstone, N. Paz, A. Giraldo & M. Cerna 9322* (Holotype of *S. aglochin*: CUVC; Isotype: MO), C. Luer illustr. 20949.

This species is related to the frequent and variable *Stelis argentata* Lindl., but differs in the larger habit with slender, fascicled ramicauls four to six centimeters long with much longer, wider, long-petiolate leaves up to 17 centimeters long and three centimeters wide. The ramicauls of *S. argentata* are variable, but usually less than six centimeters long and leaves less than 10 centimeters long. The flowers are similar but proportionately small for the large plant, the major difference being the entire margin of the type-C lip, without the classical apiculum of *S. argentata*.

350. **Stelis anolis** Luer, Selbyana 5(2): 190, 1979.

Ety.: Named for the fancied resemblance of the flower to the head of the American chameleon or Carolina anole (*Anolis carolinensis* Voigt).

Plant large, epiphytic to terrestrial, shortly scandent, ascending; roots numerous, slender. Ramicauls erect, stout, 10-20 cm long, enclosed by a tubular sheath near the middle and 2-3 sheaths at the base. **Leaf** erect, coriaceous, narrowly elliptical, acute, subacute to obtuse, petiolate, the blade 10-16 cm long, 3-5 cm wide, cuneate below into the slender petiole 3-4 cm long. **Inflorescence** an erect, sublax, distichous, many-flowered raceme with many flowers open simultaneously, 20-35 cm long including the peduncle 8-11 cm long, subtended by a slender spathe 1-2 cm long, from an annulus below the apex of the ramicaul; floral bracts oblique, acute, 2-3 mm long; pedicels 2-3 mm long; ovary 3 mm long; **sepals** yellow-green, glabrous externally, cellular-pubescent within, the dorsal sepal free, narrowly ovate-triangular with revolute margins, acute, 11-12 mm long, 3.5 mm wide, 5-veined, the lateral sepals also ovate with revolute margins, oblique, acute, 10-11.5 mm long, 3 mm wide, 5-veined, connate 3 mm; **petals** yellow-green, thick, subtriangular, obtuse, 1.75-2 mm long, 1.5 mm wide, 3-veined, with obtuse, marginal angles above the base; **lip** yellow-green, obovate-subquadrate, 1.2 mm long, 1.2 mm wide, 0.75 mm deep, shallowly concave anteriorly with the apex subtruncate with the margin thickened, transversely thickened across the middle with a distinct glenion, the dorsum flattened with 3 low calli, the base truncate, hinged to the base of the column; **column** stout, 1 mm long, 1.2 mm wide, with an obsolescent foot, the anther and the bilobed stigma apical.

ECUADOR: **Tungurahua**: terrestrial in Valle de Chaupe above Baños, alt. 2200 m, 24 July 1975, *C. Luer, G. Luer & S. Wilhelm 629* (Holotype of *S. anolis*: SEL); Río Topo, at bridge, alt. 1630 m, 27 Feb. 2001, *C. Luer, J. Luer & A. Hirtz 19541* (MO).
Napo: forest between Tena and Baeza, alt. 1500 m, 29 Mar. 1984, *C. Luer, S. Dalström, T. Höijer & J. Kuijt 9792* (MO); same area, alt. 2150 m, 13 Apr. 1985, *C. Luer, J. Luer, A. Hirtz & W. Flores*

11262 (MO); near Río Quijos north of Baeza toward Lumbaqui, alt. 1850 m, 8 Feb. 1986, *C. Luer, J. Luer, A. Hirtz, W. Flores & A. Embree 11707* (MO); new road to Coca, alt. 1200 m, *C. Luer, J. Luer, A. Hirtz & W. Flores 11234* (MO); same area, alt. 1100 m, 31 Apr. 1987, *C.H. Dodson, P. Scharf & D. Allison 17085* (MO); between Archidona and Coca, alt. 1000 m, 17 Feb. 1990, *S. Dalström & Årnby 1365* (MO).
Carchi: Río Verde near base of Cerro Golondrinas, alt. 1900 m, 30 Nov. 1967, *W.S. Hoover 2094* (MO, QCA); west of pass above Maldonado, alt. 1550 m, 17 Mar. 1991, *C. Luer, J. Luer, A. Hirtz & J. del Hierro 15123, 15123A* (MO).
Sucumbíos: El Reventador, alt. 1800 m, 30 July 1991, *A.P. Yánez & D. Bonilla 325* (QCA).
Pastaza: near Mera, alt. 1100 m, 14 Dec. 1955, *E. Asplund 18835* (AMES, S); Mera, shore of Mangayacu, alt. 1100 m, 29 Jan. 1956, *E. Asplund 19111* (S); Puerto Napo, north of Puyo, 3 Dec. 1974, *H. Lugo 4728* (AMES); Mera, along Río San Jorge and Río Tigre, alt. 1200 m, 1 Sept. 1976, *B. Ølgaard & H. Balslev 9158* (AAU, AMES, NY); Mera, Isidro Ayora, alt. 1000 m, 18 Jan. 1982, *G. Harling et al. 19711* (GB).
Morona-Santiago: new road west of Macas toward Guamote, alt. 1500 m, 6 Feb. 1987, *C. Luer, J. Luer & A. Hirtz 12695* (MO).

This large species that resembles some species of a giant pleurothallid is relatively frequent on the lower, eastern slopes of central Ecuador. The robust plant is scandent with long, stout ramicauls and large leaves. The long inflorescence bears numerous, evenly spaced, relatively large flowers in two ranks. The sepals are elongate and essentially free. The petals are triangular and elongate, protruding well beyond the type-A lip that is not remarkably different from many other species. For such a large, showy, locally frequent species to have escaped a description until late in the twentieth century is surprising.

351. Stelis apiculifera Luer & Hirtz, Monogr. Syst. Bot. Missouri Bot. Gard. 88: 37, 2002, exclude illustration 40.

Ety.: From the Latin *apiculifer*, "bearing an apiculum," referring to the lip.

Plant very small, epiphytic, caespitose; roots slender. Ramicauls erect, slender, 3-10 mm long, enclosed by 2-3 tubular sheaths. **Leaf** erect, coriaceous, narrowly obovate, subacute, 10-25 mm long, 3-5 mm wide, gradually narrowed below into the subpetiolate base. **Inflorescence** an erect, strict, distichous, subcongested, few- to several-flowered raceme 3-5.5 cm long including the peduncle 2-2.5 cm long, from an annulus below the apex of the ramicaul; floral bracts acute, 1.5 mm long; pedicels 1 mm long; ovary 0.6 mm long; **sepals** green above the middle, dark purple below the middle, glabrous externally, cellular-papillose within, ovate, obtuse, 3-veined, connate basally, the dorsal sepal 1.75 mm long, 2 mm wide, the lateral sepals 1.25 mm long, 1.75 mm wide; **petals** purple, transversely oblong, broadly rounded at the apex with a thickened margin, shallowly concave, 0.5 mm long, 0.8 mm wide, 1-veined; **lip** purple, thick, subquadrate, 0.5 mm long, 0.6 mm wide, 0.3 mm deep, shallowly concave anteriorly with the apex rounded, with a sharp apiculum in the center, the anterior surface with a narrow glenion, the dorsum rounded, cellular, the base truncate, hinged to an obsolescent column-foot; **column** stout, 0.6 mm long, 0.6 mm wide, with the anther and the bilobed stigma apical.

ECUADOR: **Morona-Santiago**: Cordillera del Cutucú, new road between Mendez and Mocoa, alt. 950 m, 17 Jan. 1989, *C. Luer, J. Luer, A. & P. Jesup & A. Hirtz 13953* (Holotype of *S. apiculifera* MO).

This species is closely allied to the frequent and variable *Stelis guianensis* Rolfe, but is most easily distinguished by its single-veined petals. It is characterized by a small, caespitose habit and a subcongested, several-flowered raceme that surpasses the narrowly obovate leaf. The sepals are broadly ovate (proportionately broader than those of *S. guianensis*), obtuse, and cellular-papillose. The petals are concave with one vein. The type-C lip is thickly discoid with a tiny, sharp apiculum in the center of a rounded, apical margin.

An illustration of *Stelis guianensis* was mistakenly used to illustrate this species in Part One of the *Stelis* of Ecuador.

352. **Stelis aprica** Lindl., Comp. Bot. Mag. 2: 353, 1836.

Ety.: From the Latin *apricus*, "growing in sunshine," referring to a habitat.

Syn.: *Stelis catharinensis* Lindl., Comp. Bot. Mag. 2: 353, 1836.
Ety.: Named for the Brazilian state of Santa Catharina, where the species was collected.

Syn.: *Stelis minutiflora* Rchb.f. ex Hoffmanns., Linnaea 16: 237, 1842.
Ety.: From the Latin *minutiflorus*, "minutely flowered," referring to the inflorescence.

Syn.: *Stelis miersii* Lindl., Ann. Mag. Nat. Hist. 14: 397, 1843.
Ety.: Named for John Miers who collected this species.

Syn.: *Stelis microglossa* Rchb.f. Linnaea 22: 821, 1849.
Ety.: From the Greek *mikroglossa*, "a minute tongue," referring to the labellum.

Syn.: *Stelis micrantha* Barb.Rodr., Gen. Sp. Orchid. Nov. 2: 93, 1881, not Sw., 1799.
Ety.: From the Greek *mikrantha*, "a minute flower," referring to the tiny size of the flower.

Syn.: *Stelis rodriguesii* Cogn., Fl. Bras. 3(4): 360, 1896, replaced name for *S. micrantha* Barb. Rodr., not *Stelis micrantha* Sw., 1799,
Ety.: Named for J. Barbosa Rodrigues who collected the species.

Plant small to medium in size, epiphytic to lithophytic, caespitose-ascending; roots slender. Ramicauls erect, slender, 6-10 cm long, enclosed by a tubular sheath from below the middle and 2-3 other sheaths at the base. **Leaf** erect, coriaceous, narrowly linear-elliptic, subacute to acute, 8-10 cm long, 0.5-0.8 cm wide, gradually narrowed below into the subpetiolate base. **Inflorescence** an erect, sublax, distichous, many-flowered raceme with most flowers open simultaneously, 8-9 cm long including the peduncle, with a few bracts, subtended by a spathe ca. 0.9-1 cm long, from an annulus below the apex of the ramicaul; floral bracts oblique, acute, 1.5-2 mm long; pedicels 1 mm long; ovary 1 mm long; **sepals** yellow-green, glabrous, connate basally, broadly ovate, obtuse, the dorsal sepal 1.5-1.75 mm long, 1.3-1.5 mm wide, 3-veined, the lateral sepals 1.5 mm long, 1.4 mm wide, 3-veined, more or less held forward; **petals** membranous, transversely elliptical, shallowly concave, 0.7 mm long, 0.8 mm wide, 1-veined, the apex broadly rounded; **lip** green, subquadrate with a prominent, abrupt, acute, triangular apiculum, 0.6 mm long excluding the apiculum 0.3 mm long, the body 0.6 mm wide, 0.4 mm deep, concave inside between margins of the bar, microscopically pubescent toward the base, the base broadly truncate, hinged to the column; **column** stout, 0.6 mm long, 0.6 mm wide, the foot obsolescent, the anther and the bilobed stigma apical.

BRAZIL: **Santa Catharina**: Hindes, on exposed stones, s.d., *Martius s.n.* (Holotype of *S. aprica*: K); without locality, *Tweedie s.n.* (holotype of *S. catharinensis* Lindl.: K). **Rio de Janeiro**: forests near Petrópolis, *B. Rodrigues s.n.* (holotype of *S. micrantha* is Rodrigues's illustration, 1881, p. 176, fig. E., RB); without collection data, *Miers s.n.* (holotype of *S. miersii* Lindl.: K); without collection data, (holotype of *S. minutiflora*: W); Theresópolis, 1879, *H. Wawra 351* (W); Blumenau, 2 Oct. 1886, *H. Schenck 304* (BR); Theresopólis, 17 June 1887, Barbosa Rodrigues, *Moura s.n.* (BR).
Minas Gerais without locality, *Regnell s.n.* (holotype of *S. microglossa*: W).
São Paulo; Campo Grande, *G. & G. San Paulo 3269* (BR).
COLOMBIA: **Valle de Cauca**: Zarzal, *P. Silverstone-Sopkin 5675* (CUVC, MO), C. Luer illustr. 16958. **Risaralda**: Hda. Los Cristales, near Río Cauca, alt. 1110 m, 11 Nov. 2001, *P. Silverstone-Sopkin 8795* (CUVC), C. Luer illustr. 21256.

This species seems to have been frequent and widely distributed in southern Brazil in the nineteenth century, but it is uncommon today, with but a few collections from north of Brazil. Numerous collections from the Andes have been misidentified as *Stelis aprica* Lindl. *Stelis panguiensis* Luer & Hirtz is possibly a shortly pubescent variation of *S. aprica*.

Stelis aprica is characterized by a small to medium habit with narrowly linear leaves and a many-flowered raceme about as long with tiny flowers. The sepals are obtuse and less than two millimeters long. The petals are subcircular and single-veined. The lip is type-B with a prominent, acute, triangular apiculum, as found in *S. hymenantha* Schltr.

353., 353a., 353b. Stelis argentata Lindl., Bot. Reg. 28: Misc. 64, 1842.

Ety.: From the Latin *argentatus*, "silvered," referring to the crystals in the floral parts.

Syn.: *Stelis heylidiana* H.Focke, Tijdschr. Wis- Natuurk. Wetensch. 2: 201, 1849.
Ety.: Named for a Mr. Heylid who collected this species.

Syn.: *Stelis endresii* Rchb.f., Gard. Chron. 1373, 1870.
Ety.: Named for A.R. Endres who collected this species.

Syn.: *Stelis yauaperyënsis* Barb.Rodr., Vellosia ed. 2, 1: 120, 1891.
Ety.: Named for Río Yauapery along which the species was collected.

Syn.: *Stelis bernoullii* Schltr., Repert. Spec. Nov. Regni Veg. 15: 201, 1918.
Ety.: Named for Karl Gustav Bernoulli, co-collector of this species.

Syn.: *Stelis glandulosa* Ames, Sched. Orchid. 3: 3, 1923.
Ety.: From the Latin *glandulosus*, "glandular," referring to the pubescent sepals.

Syn.: *Stelis huebneri* Schltr., Beih. Bot. Centralbl. 42(2): 88, 1925.
Ety.: Named for G. Hübner who collected this species.

Syn.: *Stelis acicularis* Luer, Phytologia 49: 124, 1981.
Ety.: From the Latin *acicularis*, "with needle-like point," referring to the lip.

Syn.: *Stelis pichinchae* Dodson & Garay, Ic. Pl. Trop. 330, 1980.
Ety.: Named for the Ecuadorian Province of Pichincha where the species was collected.

Plant small to large, epiphytic, caespitose; roots slender. Ramicauls erect, stout, 2-6 cm long, enclosed by a tubular sheath near the middle and 2-3 others at the base. **Leaf** erect, coriaceous, elliptical, acute, subacute to obtuse, 5-11 cm long including the petiole 1.5-3 cm long, 1-3 cm wide, cuneate below into the petiole. **Inflorescence** an erect, subdense, distichous, subsecund, many-flowered raceme with several to many flowers open simultaneously, 10-26 cm long including the peduncle 3-10 cm long, with a few bracts, subtended by a spathe ca. 1 cm long, from an annulus below the apex of the ramicaul; floral bracts oblique, acute, 1-1.5 mm long; pedicels 1.5 mm long; ovary 1-2.5 mm long; **sepals** expanded, pale yellow, suffused with purple, or purple, glabrous externally, shortly pubescent or cellular-glandular within, connate basally, broadly ovate, obtuse, the dorsal sepal 2-5 mm long, 2-5 mm wide, usually 3-veined, occasionally with an additional pair, the lateral sepals 2-5 mm long, 2-5 mm wide, 3-veined; **petals** yellow or purple, transversely cuneate-obovate, shallowly concave, 0.5-1 mm long, 1-1.5 mm wide, the apex broadly rounded with the margin thickened; **lip** yellow or purple, thick, transversely subquadrate, 0.6 mm long, 0.8-1 mm wide, 0.4 mm deep, shallowly concave inside the apical margin, the margin thin, with a single minute apiculum centrally, the bar convex with a long, narrow glenion, the base broadly truncate, hinged to the base of the column; **column** stout, 0.5 mm long, 1 mm wide, the foot obsolescent, the anther and the stigma apical, the stigma bilobed.

Representative collections:
GUAYANA: without collection data, collected by R. Schomburgk *427*, flowered in cultivation with *Messrs Loddiges 75* (Holotype of *S. argentata*: K); without collection data, 1838, *R. Schomburgk 427* (G); Arakaka, Jan. 1896, *E.F. im Thurn 47* (K); Barima, Mar. 1896, *Jenman 6939* (K); basin of Essequibo River, 15-24 Dec. 1937, *A.C. Smith 2797* (K, NY, US); without collection data, *Heylid s.n.* (holotype of *S. heylidiana* H.Focke unknown, neotype here designated, *A.C. Smith 2797*, K).
SURINAME: Wilhelmina Mountains, alt. 700 m, 15 July 1981, *R.O. Determann 224* (SEL); without data, *Hostmann 1206* (W); without data, 1845, *Hostmann 1322* (G, W).
FRENCH GUYANA: Saül, south of airfield, alt. 200-210 m, 10 Nov. 1986, *L. Skog, C. Feuillet & A. Rossman 7385* (SEL, US).
BRAZIL:**Amazonas**: Rio Yauapery, *B. Rodrigues s.n.* (holotype of *S. yauaperyënsis* is Rodrigues's illustration:1881, p. 89, fig. 2, RB); Rio Macura, *G. Hübner 66* (holotype of *S. huebneri* destroyed at B, neotype here designted: *Stelis yauaperyënsis* Barb.Rodr., RB); Terr. Amapa, Rio Oiapoque, Cachoeira Grande Roche, 28 July 1960, *H.S. Irwin et al. 47208* (K, NY); Rio Jarí, Monte Dourado, Serrinha, 4 Dec. 1968, *N.T. Silva 1486* (K, NY); Terr. Roraima, Serra dos Surucucus, 21 Feb. 1969, *G.T. Prance et al. 10148* (K, NY).
VENEZUELA: **Bolívar**: south of El Dorado, Río Uaiparú, near Mariwá Falls, Aug. 1956, *G.C.K. Dunsterville 374*.
COLOMBIA: **Valle de Cauca**: between Cali and Buenaventura, alt. 1500 m, 1 July 1965, *C.H. Dodson & H. Hills 3193* (SEL).
PANAMA: **Chiriquí**: near San Vicente, alt. 500 ft., *C. Luer & H. Butcher 1255* (SEL). **Coclé**: El Valle, flowered in cultivation 5 May 1976, *C. Luer 969* (SEL). **Panama**: Cerro Jefe, alt. 1000 m, 5 Dec. 1976, *C. Luer, J. Luer & P. Taylor 1283* (SEL).
COSTA RICA: Without locality, ca. 1867, flowered in cultivation in the Hamburg Botanical Garden, Dec. 1869, July 1870, *A. Endres s.n.* (holotype of *S. endresii*: W). Without collection data, flowered in cultivation at Kew, *C.H. Lankester s.n.* (holotype of *S. glandulosa*: K).

NICARAGUA: **Rivas**: Ometepe Island, Lake Nicaragua, alt. 1230 m, *A.H. Heller 8278* (SEL).
GUATEMALA: **Quetzaltenango**: Costa Grande, Hda. de Las Nubes, alt. 4,000 ft., Nov. 1877, *M. Bernoulli & O. Cario s.n.* (holotype of *S. bernoullii* destroyed at B, neotype here designated: *A.F. Skutch 1433* (SEL); Palmar, alt. 3,800 ft., 12 Oct. 1934, *A.F. Skutch 1433* (SEL).
MEXICO: **Veracruz**: Ixhuacán, between Herradura Aguacate and Pantlanalan, alt. 1650 m, 27 June 1982, *M. Cházaro & J. Márquez 2432* (XAL). **Guerrero**: Chichihualco, between Atoyac de Alvarez and Xochipala, alt. 1900 m, 15 July 1984, *M.A. Soto & G. Salazar 1201* (AMO).
ECUADOR: **Carchi**: between Maldonado and Chical, alt. 1400 m, 17 Mar. 1991, *C. Luer, J. Luer, J. del Hierro, A. & X. Hirtz 15114* (MO).
Sucumbíos: Imuya Cocha along Río Lagartococha, alt. 200 m, 20 Oct. 1991, *C.H. Dodson, G. Romero & P.M. Dodson 18923* (MO).
Imbabura: Los Cedros Reserva, alt. 1400 m, 23 Jan. 1993, *S. Dalström, T. Höijer & H. Wanntorp 1742* (MO); west of Otavalo near Selva Alegre, July 1991, cultivated in Chamblee, GA, 15 Jan. 1993, *F L Stevenson 92-0612-4* (MO).
Pichincha: Valley of Lloa, alt. 8,000 ft., *Hall s.n.* (K); Santo Domingo, alt. 1530 m (more likely 1530 than 530 as published), 28 July 1979, *C.H. Dodson et al. 8642* (holotype of *S. pichinchae*: SEL); old road between Chiriboga and Santo Domingo, alt. 1690 m, 31 Mar. 1984, *C. Luer, S. Dalström, T. Höijer & J. Kuijt 9841, 9879* (MO); below Tandapi, alt. 1180 m, 31 Jan. 1987, *C. Luer, J. Luer & A. Hirtz 12558* (K, MO).
Cotopaxi: trail from El Corazón to Facundo Vela, alt. 1300 m, 17 May 1980, *G. Harling & L. Andersson 19210* (GB); Tenefuerste, Río Pilalo, orange trees, alt. 800 m, 8 Mar. 1982, *C.H. Dodson & P.M. Dodson 12913* (MO).
Manabí: Cerro Montecristi, alt. 500 m, 27 Feb. 1977, flowered in cultivation at SEL, *C. Luer, J. Luer & K. Cordoba 1828* (holotype of *S. acicularis*: SEL).
Napo: between Lago Agrio and El Conejo, alt. 300 m, 15 Feb. 1980, *G. Harling & L. Andersson 16516* (GB); Río Napo, Jatun Sacha below Misahualli, alt. 450 m, 2 Oct. 1986, *W. Palacios 1385* (MO).
Bolívar: between Salinas and La Palma, alt. 1250 m, 12 Mar. 1991, *C. Luer, J. Luer, A. Hirtz et al. 15016* (MO); between La Palma and Echaendia, alt. 2450 m, July 1991, cultivated in Chamblee, GA, by *F L Stevenson 91-1129-8* (MO).
Morona-Santiago: east of the pass between Gualaceo and Limón, alt. ca. 3000 m, 3 Mar. 1977, *C. Luer, J. Luer & K. Cordoba 1500* (SEL); new road between Mendez and Morona, alt. 950 m, 17 Jan. 1989, *C. Luer, J. Luer, A. Hirtz et al. 13972* (MO).
El Oro: forest south of Piñas, alt. 950-1000 m, 20 Mar. 1985, *C. Luer, J. Luer, A. Hirtz & W. Flores 10667* (MO).
Loja: between Alamor and Cazaderos, alt. 1100 m, 4 Apr. 1980, *G. Harling & L. Andersson 17881* (GB); Cerro Toledo, south of Yangana, alt. 2500 m, 7 Apr. 1985. *G. Harling & L. Andersson 23843* (GB).
El Oro: west of Piñas, alt. 900 m, 8 Oct. 1979, *C.H. Dodson, A. Gentry & G. Shupp 8989* (MO); above Piñas shrine, Apr. 1989, cultivated in Chamblee, GA, *F L Stevenson 90-0422-6* (MO); Hda. Daucay, southeast of Limón-playa, alt. 500 m, 20 Nov. 1994, *X. Cornejo & C. Bonifaz 3607* (GUAY).
Zamora-Chinchipe: Namírez, north of Cumbaraza, alt. 900 m, 24 Apr. 1974, *G. Harling & L. Andersson 13957* (GB); between Loja and Zamora, collected 3 Nov. 1982, cultivated at SEL, 12 May 1983, *C. Luer 9064* (SEL); Cordillera del Condor, alt. 1200 m, cultivated at Ecuagenera, Gualaceo, 2 Feb. 2002, *A. Hirtz 8028* (MO).
PERU: **Cajamarca**: San Ignacio, Bosque El Pacashal, alt. 650-800 m, 10 July 1997, *E. Rodriguez & D. Pesantes 1663* (MO). **Cuzco**: Machu Picchu, alt. 2550-2800 m, 3 Jan. 1963, *H.H. Iltis, C.M. Iltis, D. & V. Ugent 1104* (K).
BOLIVIA: **La Paz**: Muñecas, near Consata, alt. 1200 m, 22 Jan. 1981, *C. Luer, J. Luer & R. Vásquez 5705* (SEL).

This well-known, frequent species, or better, a species-complex, is widely distributed through much of tropical America excluding the Antilles. It varies considerably in size vegetatively and florally, acquiring several names. In Central America, it is known as *Stelis endresii* Rchb.f. It grades into the large *Stelis superbiens* Lindl. of the Andes, known in Central America as *Stelis leucopogon* Rchb.f., even into the tiny *Stelis guianensis* Rolfe.

The lip is classic type-C with a broad, smooth bar sloping forward from the dorsum with a longitudinal glenion down to the shallowly concave margin. At the center of the margin a minute apiculum is present. A variation with a cavity in the forward slope of the bar, somewhere intermediate between type-A and type-C, is seen in Fig. 353b.

30., **Stelis ascendens** Lindl., Comp. Bot. Mag. 2: 353, 1836.

Ety.: From the Latin *ascendens*, "ascending," referring to the repent habit.

Syn.: *Stelis vittata* Lindl., Folia Orchid. *Stelis* 13(96), 1858.
Ety.: From the Latin *vittatus*, "striped longitudinally," referring to the sepals.

Syn.: *Stelis amoena* Luer & Hirtz, Monogr. Syst. Bot. Missouri Bot. Gard. 88: 36, 2002, not *S. amoena* Pridgeon & M.W.Chase, 2002 [=*Acianthera parahybunensis* (Barb.Rodr.) Luer, 2008].
Ety.: From the Latin *amoena*, "pretty," referring to the plant.

Selected representative collections:
ECUADOR: **Pichincha**: Valley of Lloa, alt. 8,000 ft., *Col. Hall s.n.* (Holotype of *S. ascendens*: K); Valley of Lloa, *W. Jameson 92* (holotype of *S. vittata*: K); Valley of Lloa, *W. Jameson 322* (BM, BR, G, W);base of Pichincha on sides of ravines, (R.83) *W. Jameson s.n.* (AMES, K, W); forest of Nanegal, 1854, *W. Jameson s.n.* (K); Quito, *Karsten s.n.* (W); between San Antonio and Calacali, alt. 2650 m, 14 Feb. 1978, *P. Bamps 6256* (AMES, BR); between Cotocollao and Nono, alt. 3200 m, 29 Jan. 1974, *G. Harling & L. Andersson 11669* (AMES, GB); Cerro Azul, west flank of Volcán Iliniza, 2800 m, 23 Jan. 1987, *C. Luer, J. Luer & A. Hirtz 12457* (holotype of *S. amoena* Luer & Hirtz: MO).
Carchi: Nord Ecuador, Páramo de Tuza, alt. 2500-2800 m, 31 Jan. 1881, *F.C. Lehmann 323* (W); Mirador, north of El Playón de San Francisco, alt. 3300 m, 27 Nov. 1983, *B. Eriksen & B. Boysen Larsen 45796* (AAU, QCA); between Tulcán and Maldonado, alt. 2400 m, *C. Luer, S. Dalström & T. Höijer 9950* (MO).
Imbabura: Laguna Cuicocha, west of Ibarra, alt. 3100 m, 24 May 1973, *L. Holm-Nielsen, S. Jeppesen, B. Løjtnant & B. Ølgaard 6367* (AAU, AMES); west of pass toward Apuela, alt. 2700 m, 4 Feb. 1986, *C.H. Dodson 16315* (MO).
Tungurahua: Volcán Tungurahua above Baños, alt. 3000 m, 20 Aug. 1939, *E. Asplund 2598* (AMES, S); Juivi, north slope of Tungurahua, 2330 m, 7 Jan. 1962, *C.H. Dodson & L.B. Thien 1829* (MO).
Bolívar: Volcán Chimborazo, alt. 3000-3500 m, *F.C. Lehmann 8219* (AMES); west of Guaranda toward Catarama, alt. 2500 m, 13 Mar. 1991, *C. Luer et al. 15040* (MO).
Morona-Santiago: near Guarumales, cultivated at Ecuagenera, Gualaceo, 17 Apr. 2001, *A. Hirtz 7705* (MO).
Loja: above Yangana, north of the pass, alt. 2400 m, 23 Mar. 1985, *C. Luer, J. Luer, A. Hirtz & W. Flores 10879* (MO).
Zamora-Chinchipe: above Quebrada Honda, below Yangana, alt. 2100 m, 27 Mar. 1986, *D. D'Alessandro & H. Mendoza 557* (MO).
COLOMBIA: **Antioquia**: Yarumal, Raton Pelado, alt. 2790 m, 12 Sept. 1984, *C.H. Dodson, R. Escobar & E. Valencia 15281* (MO).
VENEZUELA: **Mérida**: road to Santo Domingo, alt. 2700 m, 19 Aug. 1958, *Pannier & Schwabe 1555* (AMES, VEN).

A caespitose example of *Stelis ascendens* Lindl. was described and illustrated in *Icones Pleurothallidinae* 24, Part One, Fig. 38., as *S. amoena* Luer & Hirtz. Lindley first described the species from a collection by Colonel Hall, a friend of Jameson, and a caespitose collection by Jameson was described by Lindley as *S. vittata*. It is frequent and widely distributed from westernmost Venezuela to southernmost Ecuador. Vegetatively, it is variable, probably depending on local growing conditions, as it grows either epiphytically or terrestrially, and either as ascending or caespitose. When ascending or creeping horizontally, the thick rhizome bears ascending, erect ramicauls spaced evenly in a row, but when ascending vertically, the rhizomes and ramicauls appear fasciculate. All variations from long-scandent to densely fasciculate are seen in large collections.

A long, distichous, many flowered raceme often far surpasses the leaf. The sepals are ovate, obtuse, and pubescent within; and the petals are rounded and three-veined. The lip is thickly discoid, broader than deep, a variation of type-C, and is shallowly concave with a rounded, thin margin. An elongated glenion descends on the surface of the thick bar, with a glenion extending forward from the densely pubescent base.

152., **152a. Stelis atra** Lindl., Orchid. Lind. 11(79), 1846.

Ety.: From the Latin *ater*, "dark," referring to the color of the flowers.

Syn.: *Stelis dispar* C.Schweinf., Fieldiana, Bot. 28: 177, 1951.
Ety.: From the Latin *dispar*, "unequal," referring to the sizes of the dorsal and lateral sepals.

Syn.: *Stelis hallii* var. *atra* (Lindl.) Garay & C.Schweinf., Orchid. Peru Suppl. 1: 11: 1970, nom. illeg.

Syn.: *Stelis epibator* Luer & Hirtz, Monogr. Syst. Bot. Missouri Bot. Gard. 95: 152, 2004.
Ety.: From the Greek *epibator*, "a climber," referring to the scandent habit.

Selected representative collections:
VENEZUELA: **Mérida**: Páramo de la Tulata, alt. 10,000 ft, 1842, *J. Linden 687* (Holotype of *S. atra*: K). Boconó-Guaramacal road, alt. 6,000-7,000 ft., Aug. 1961, *G.C.K. Dunsterville 657*. Merida : near summit of Serro San Isidro, above La Carbonera, alt. 2430-2745 m, 22 Apr. 1944, *J.A. Steyermark 56034* (holotype of *S. dispar*: AMES; isotype: F). **Táchira**: Páramo de la Negra, alt. 2700-2900 m, 29 Aug. 1966, *J.A. Steyermark & M. Rabe 96920* (AMES, VEN).
COLOMBIA: **Nariño**: Laguna bei Pasto, alt. 9,500 ft., 17 Oct. 1878, *F.C. Lehmann s.n.* (holotype of *S. hallii* var. *atra*: W), nom. illeg.
ECUADOR: **Pichincha**: Cerro Azul, west flank of Volcán Iliniza, alt. 2800 m, 23 Jan. 1987, *C. Luer, J. Luer & A. Hirtz 12461* (MO).
Napo: between Baños and Puyo, alt. 1600 m, 8 Oct. 1961, *C.H. Dodson & L.B. Thien 928* (SEL).
Tungurahua: slopes of Volcán Tungurahua above Baños, alt. 3000 m, 27 Mar. 1984, *C. Luer, S. Dalström, T. Höijer & J. Kuijt 9755* (MO).
Bolívar: Hda. Talahua, alt. 2700 m, 7 May 1939, *C.W. Penland & R.H. Summers* (AMES, COCO).
Morona-Santiago: between Sigsig and Gualaquiza, Campamento San Miguel, alt. 3000 m, 8 Apr. 1968, *G. Harling, G. Storm & B. Ström 8052* (GB); Ave Maria Pass between Gualaceo and Limón, alt. 3000 m, 7 May 1981, *C. Luer, J. Luer & A. Hirtz 6120* (SEL); between Sigsig and Chiguinda, alt. 3100 m, 5 Feb. 1988, *U. Molau, B. Eriksen & M. Fredrikson 2952* (GB); east of the pass southeast of Sigsig, alt, 2950 m, 15 May 1988, *C. Luer, A. Hirtz, A. Andreetta & W. Teague 13342* (K, MO).
Azuay: east of Cuenca, above Cumbe, alt. 2800 m, 6 Mar. 2001, *C. Luer, J. Luer, A. Hirtz, E. Sanchez & L. Suin 19758* (holotype of *S. epibator*: MO); Lago Zorrogucho, alt. 3000 m, 10 Jan. 1958, *C.H. Dodson 282* (MO); southwest of Cuenca toward Zorrogucho, alt. 3200 m, 17 Mar. 1984, *C. Luer, S. Dalström, T. Höijer & J. Kuijt 9535, 9536* (MO).
Zamora-Chinchipe: south of Yangana, south of the pass, alt. 2600 m, 3 Mar. 1982, *C. Luer, A. Andreetta, S. Dalström & D. D'Alessandro 7125* (SEL); Nudo de Sabanilla, east of the pass to Valladolid, alt. 2800 m, 4 Feb. 1985, *G. Harling & L. Andersson 21546* (GB).
PERU: **Huancavelica**: Tayacaja, Montepungo, alt. 3000 m, 13 Jan. 1939, *H.E. Strok & O.B. Horton 10385* (AMES, UC).

Stelis atra, a common colonizer of road embankments, is widely distributed and locally abundant in the Andes at high altitudes between 2500 and 3000 meters above sea level. It was first described by Lindley from a Venezuelan collection by Jean Linden, and recently an Ecuadorian collection was described as *S. epibator* Luer & Hirtz in *Icones Pleurothallidinae* 26, Part Two, Fig. 152.

The species is characterized by a small, fasciculate-ascending habit, with narrowly elliptical, petiolate leaves. One to three racemes, often shorter than the leaf, bear several flowers that open simultaneously as the raceme lengthens. The sepals are dark purple externally and often rose internally, which imparts a bluish color, similar to the sepals of *Stelis atrocaerulea* Luer & Hirtz. The sepals are broad and obtuse with the dorsal sepal noticeably larger than the lateral sepals. The petals are transverse and three-veined, and the lip is type-A.

Morphologically, the flowers of *Stelis atra* are similar to those of *S. hallii* Lindl., but the latter is characterized by racemes considerably longer than the leaves and rounded, single-veined petals. The lips of both species are similar. *Stelis atra* appears very similar in habit to *S. atrocaerulea*,which differs in having single-veined petals and a bluntly apiculate, type-B lip, very similar to that of the smaller *S. pusilla* Lindl. A yellow-flowered variation with a longer rhizome was described as *S. epibator* Luer & Hirtz.

256. **Stelis atroviolacea** Rchb.f., Bonplandia 3: 70, 1855.

Ety.: From the Latin *atroviolaceus*, "deep violet," referring to the flowers.

Syn.: *Stelis papillosa* Garay, Canad. J. Bot. 34: 352, 1956.
Ety.: From the Latin *papillosus*, "papillose," in this case referring to pubescent sepals.

Syn.: *Stelis lacunata* Luer & Endara, Monogr. Syst. Bot. Missouri Bot. Gard. 112: 33, 2007.
Ety.: From the Latin *lacunatus*, "hollowed out," referring to the deeply concave lip.

COLOMBIA: **Old dept. of Ocaña**: San Pedro, alt. 1700 m, Mar. 18??, *Wagener s.n.* (Holotype of *S. atroviolacea*: W), C. Luer illustr. 21251.
ECUADOR: **Tungurahua**: vicinity of Patate, Hda. Leito, alt. 2800 m, 5 Aug. 1939, *E. Asplund 8090* (holotype of *S. papillosa*: S; isotype: AMES), C. Luer illustr. 21252, 2006.
Loja: Parqué Nacional Podocarpus, above Nudo de Cajanuma, alt. 3000 m, 10 Apr. 1989, *J.E. Madsen 85972* (holotype of *S. lacunata*: AAU), C. Luer illustr. 20510, 2006.

Stelis atroviolacea was described by Reichenbach from a collection by Wagener from the Eastern Cordillera of Colombia. A collection of this species from westcentral Ecuador was described by Garay as *Stelis papillosa*; a collection from southeasternmost Ecuador was described and illustrated in *Icones Pleurothallidinae* 29, Part Three, Fig. 256., as *S. lacunata* Luer & Endara.

This species is apparently uncommon, but widely distributed. It is characterized by a crowded raceme of dark purple flowers that surpasses the elliptical leaf. The sepals are broadly ovate and obtuse, and covered by a long-haired pubescence. It is not papillose. The petals are broadly obtuse with a thickened margin and a transverse callus. The distinctive lip is deeply concave behind a thin, rounded margin and below a shelf-like bar.

251. **Stelis attenuata** Lindl., Folia Orchid. *Stelis* 2, no. 7, 1858.

Ety.: From the Latin *attenuata*, "attenuated," referring to the elongated raceme.

Syn.: *Stelis eumeces* Luer & Hirtz, Monogr. Syst. Bot. Missouri Bot. Gard. 112: 30, 2007.
Ety.: From the Greek *eumekes*, "of good length," referring to the inflorescence.

COLOMBIA: without locality, *Purdie s.n.* (Holotype of *S. attenuata*: K). **Cauca**: north slope of Volcán Puracé, Río Palacé, alt. 10,000 ft., 20 May 1878, *F.C. Lehmann s.n.* (W).
ECUADOR: **Loja**: near Loja, *Hübsch s.n.* (W).
Imbabura: Selva Alegre west of Otavalo, alt. ca. 2000 m, collected in 1979, flowered in cultivation at SEL, 5 July 1981, *C. Luer 6425* (holotype of *S. eumeces*: SEL).
PERU: **Ayacucho**: between Huanta and Río Apurimac, alt. 750-1000 m, 7 May, 1929, *E.P. Killip & A.C. Smith 23150* (AMES).

This species, described by Lindley from a Colombian collection by Purdie, is uncommon, but widely distributed from southern Colombia to southern Peru. A collection from northwestern Ecuador was described as *Stelis eumeces* Luer & Hirtz in *Icones Pleurothallidinae* 29, Part 3, Fig. 251. A hydrated flower from the holotype is identical to the flower of the type of *S. eumeces*. The illustration accompanying the description of the latter fails to show the five veins in the dorsal sepal that were not copied in the inked version. The illustration by Elmer Smith of *S. attenuata* Lindl. (Garay, 1980) also fails to show the five veins.

Stelis attenuata is a large plant with a long, many-flowered raceme of small flowers that are loosely arranged low in the raceme, but progressively more densely flowered higher in the raceme. The sepals are ovate, subacute and veined as above. The three-veined petals with a transverse callus, and the type-A lip are similar to those of numerous other species. *Stelis attenuata* is similar to the equally large *S. celsa* Luer & Hirtz which has three-veined sepals.

354. **Stelis azuayensis** Luer, sp. nov.

Ety.: Named for the province of Azuay where the species occurs.

Species haec *Stelidis esmeraldae* Luer & Hirtz similis, sed racemo stricto multilongiore, bracteis majoribus et petalis non proportione majoribus differt.

Plant small, epiphytic, caespitose; roots filiform. Ramicauls erect, stout, 2-3 cm long, enclosed by a loose tubular sheath and 1-2 shorter sheaths at the base. **Leaf** erect, coriaceous, elliptical, acute, 4-6 cm long including a petiole less than 1 cm long, the blade 1-1.7 cm wide, narrowly cuneate below into the petiole. **Inflorescence** 1-3 erect, congested, many-flowered racemes, with numerous flowers open simultaneously, 10-15 cm long including the peduncle 3-5 cm long, with a spathe 6-8 mm long, from below the apex of the ramicaul; floral bracts oblique, acute, 3 mm long; pedicels 1 mm long; ovary 1 mm long; flowers brownish violet *fide* the collector; **sepals** expanded, densely short-pubescent, glabrous externally, broadly ovate, obtuse, connate basally, the dorsal sepal 3.5 mm long, 3.3 mm wide, 3-veined, the lateral sepals oblique, 2.5 mm long, 3 mm wide, 3-veined; **petals** transversely reniform, 1 mm long, 1.5 mm wide, 3-veined, the apex broadly rounded with a broad zone between the margin and a transverse callus, concave basally; **lip** thickly subquadrate, 0.25 mm long, 0.6 mm wide, 0.6 mm deep, concave anteriorly within the round, apical margin, the bar with a glenion, the dorsum with a central, rounded callus continuous with the glenion, the base broadly truncate, hinged to the base of the column; **column** stout, 0.6 mm long, 01.2 mm wide, the foot obsolescent, the anther and the bilobed stigma apical.

ECUADOR: **Azuay**: road from Sigsig to Gualaquiza, Campamento Moldón, above Moldón, alt. 2500-3000 m, 11 Apr. 1968, *G. Harling, G. Storm & B. Ström 8227* (Holotype of *S. azuayensis*: GB), C. Luer illustr. 21295.

This species from highland, southeastern Ecuador is similar in habit to *Stelis esmeraldae* Luer & Hirtz from lowland, coastal Ecuador. It differs from the latter by having one to three much longer, congested racemes with larger floral bracts. The petals of *S. esmeraldae* are huge, at least thrice larger than the lip, while the petals of *S. azuayensis* are only a trifle larger than the lip. The lips of the two species vary only in minutia.

355. **Stelis braccata** Rchb.f. & Warsz., Bonplandia 2: 114, 1854.

Ety.: From the Latin *braccatus*, "wearing trousers," could he be referring to the cauline sheaths?

Syn.: *Stelis minimiflora* Schltr., Repert. Spec. Nov. Regni Veg. Beih. 27: 31, 1924.
Ety.: From the Latin *minimiflorus*, "minute-flowered," referring to the small size of the flowers.

Syn.: *Stelis pleistantha* Schltr., Repert. Spec. Nov. Regni Veg. Beih. 27: 36, 1924.
Ety.: From the Greek *pleistantha*, "most flowers," referring to the racemes.

Syn.: *Apatostelis braccata* (Rchb.f. & Warsz.) Garay, Bot. Mus. Leafl. Harvard Univ, 27: 187, 1980.

Syn.: *Apatostelis minimiflora* (Schltr.) Garay, Bot. Mus. Leafl. Harvard Univ. 27: 189, 1980.

Syn.: *Apatostelis pleistantha* (Schltr.) Garay, Bot. Mus. Leafl. Harvard Univ. 27: 190, 1980.

Plant small to medium in size, epiphytic, densely caespitose; roots slender, numerous. Ramicauls fascicled, erect, slender, 2-7 cm long, enclosed by a loose, tubular sheath from near the middle and 2 sheaths about the base. **Leaf** erect, coriaceous, narrowly elliptical-oblong, subacute, to narrowly obtuse 3-8 cm long including a petiole ca. 1 cm long, 0.5-0.8 cm wide, narrowly cuneate below into the petiole. **Inflorescence** a fascicle of 2-6 erect, congested, distichous, slightly flexuous, simultaneously many-flowered racemes, 3-5 cm long, flowering from near the base, with a spathe 5-8 mm long at an annulus below the apex of the ramicaul; floral bracts oblique, subacute, 0.75-1.5 mm long; pedicels 0.5 mm long; ovary 0.5-1 mm long; **sepals** expanded above the middle, more or less recurved, yellow, glabrous, broadly ovate, obtuse, connate basally into a cup for the central apparatus, the dorsal sepal 1-1.25 mm long, 0.8-1 mm wide, 3-veined, the lateral sepals 1-1.25 mm long, 0.8-1 mm wide, 3-veined, minutely apiculate; **petals** yellow, glabrous, cumeate with the apex broadly truncate, slightly thickened on the edge, 0.6 mm long, 0.5 mm wide, 1-veined; **lip** yellow, thick, oblong-ovate, 0.6 mm long, 0.3 mm wide, 0.2 mm thick or deep, concave above the middle with the apex obtuse, thickly callous below the middle, minutely pubescent above the base, the base broadly truncate, hinged to the base of the column; **column** stout, 0.75 mm long, 0.75 mm wide, the anther and the narrowly transverse stigma apical, the lobes confluent, the foot obsolescent.

COLUMBIA: "New Grenada," *J. von R. Warszewicz s.n.* (Holotype of *S. braccata*: W; Isotype: AMES); without collection data, flowered in cultivation in Brussels, 8 Nov. 1912 (BR);
Nariño: Vulcán Galeras near Pasto, alt. 3500 m, Mar. 1922, *W. Hopp 171* (holotype of *S. minimiflora* destroyed at B, neotype here designated, *F.C. Lehmann 6140* (AMES); near Daza, northwest of Pasto, alt. 2800 m, Jan. 1922, *W. Hopp 139* (holotype of *S. pleistantha*: destroyed at B, neotype here designated, *C. Luer, S. Dalström & T. Höijer 9903* (MO)); Volcán Sotara, alt. 2800-3300 m, *F.C. Lehmann 6140* (AMES).
VENEZUELA: **Dist. Fed.**: Caracas, *R. Lansberg s.n.* (W); GOK: Salom-Timerla road, May 1954, *G.C.K. Dunsterville 200.*
ECUADOR: **Carchi**: between Tulcán and Maldonado, alt. 1950 m, 2-4 Apr. 1984, *C. Luer, S. Dalström & T. Höijer 9903* (MO).
Sucumbíos: near El Carmelo, alt. 3100 m, 26 Feb. 1974, *G. Harling & L. Andersson 12228* (GB).
Pichincha: west of Calacalí, alt. 2550 m, 4 Apr. 1985, *C. Luer, J. Luer, A. Hirtz, C. & P. Dodson 11045* (MO).
Pastaza: without locality, alt. 1700 m, *A. Hirtz 1973* (MO), C. Luer illustr. 20437.
Tungurahua: near Baños, alt. 1800 m, 24 Mar. 1956, *E. Asplund 19902* (GB, S).
Loja: terrestrial, west of the pass between Loja and Zamora, alt. 2400-2700 m, 17 June 1979, *B. Løjtnant, A. & U. Molau 15039, 15040* (AAU, GB); south of Yangana, alt. 2250 m, 11 May 1981, *C. Luer, J. Luer & A. Hirtz 6176* (SEL); Nudo de Sabanilla, above Yangana, alt. 2300 m, 2 Apr. 1985, *G. Harling & L. Andersson 23552, 23608* (GB); TV road east of Yangana, alt, 2480 m, 4 Mar. 1982, *C. Luer, A. Andreetta, D. D'Alessandro & S. Dalström 7190* (SEL).
Azuay: terrestrial between Cumbe and El Progresso, alt. 3200 m, 4 Aug. 1975, *C. Luer, G. Luer & S. Wilhelm 367* (SEL).
Zamora-Chinchipe: Cachaco, between Loja and Zamora, 20 May 1980, *D. D'Alessandro 91* (SEL).

This species is widely distributed from coastal Venezuela into the Andes of eastern Ecuador. It is characterized by densely fascicled ramicauls that are about as long as the narrow leaves. One to six slender, congested, many-flowered racemes of tiny flowers are shorter than the leaf, but occasionally some barely reach about as high as the leaf. The sepals are minute and broadly ovate; the petals are cuneate, barely thickened on the margin and single-veined; and the type-B lip is oblong, obtuse, concave above the middle and thickly callous below the middle.

The flower used by Dunsterville for the illustration of *Stelis braccata* in *Venezuelan Orchids* was no doubt an old flower with a withered lip accounting for the wrinkling and the pointed tip of the lip. The accompanying illustration made from a rehydrated flower from the type agrees with Ecuadorian collections previously identified as *Stelis minimiflora* Schltr.

78, **Stelis calothece** Schltr., Repert. Spec. Nov. Regni Veg. 14: 121, 1915.

Ety.: From the Greek *calothece*, "beautiful case," probably referring to the flower.

Syn.: *Stelis porphyrea* Luer & Hirtz, Monogr. Syst. Bot. Missouri Bot. Gard. 88: 57, 2002.
Ety.: From the Greek *porphyreus*, "purple," referring to the plant and flowers.

Plant small, epiphytic, caespitose; roots slender. Ramicauls erect, slender, 1-2.5 cm long, enclosed by 2-3 tubular sheaths. **Leaf** green, sometimes suffused with purple, erect, coriaceous, elliptical, subacute to obtuse, 2.5-4 cm long, 0.5-1 cm wide, cuneate below into a petiole ca. 1 cm long. **Inflorescence** an erect, distichous, sublax, simultaneously several-flowered raceme to 6 cm long including the peduncle ca. 3 cm long, from an annulus below the apex of the ramicaul; floral bracts acute, 1.5 mm long; pedicels 1.25 mm long; ovary 1.5 mm long; **sepals** white, rose, to purple, glabrous externally, glabrous to shortly pubescent within, ovate, obtuse, 3-veined, connate basally, the dorsal sepal 2.5-3.5 mm long, 2.5-3.5 mm wide, the lateral sepals 2.25-3.5 mm long, 2.5-3.5 mm wide; **petals** broadly ovate, concave, without a transverse callus, broadly rounded at the apex, with a thickened margin, 0.75-0.9 mm long, 1-1.25 mm wide, 3-veined; **lip** thick, suborbicular, type-C, 0.6 mm long, 0.6-0.8 mm wide, 0.3-0.5 mm deep, concave anteriorly with within thin margins with the apex rounded, sharply apiculate, the the bar broadly rounded from a minutely pubescent base, with a long, narrow glenion, the base truncate, hinged to an obsolescent column-foot; **column** stout, 0.8 mm long, 0.8-1 mm wide, with the anther and the bilobed stigma apical.

ECUADOR: **Pichincha**: forests of Volcán Pululahua near Niebly, July 1876, *A. Sodiro s.n.* (holotype of *S. calothece* destroyed at B, lectotype here designated: BR); forest between San Miguel de los Bancos and Mindo, alt. 2300 m, 1 Apr. 1984, *C. Luer, S. Dalström, T. Höijer & A. Hirtz 9879* (holotype of *S. porphyrea*: MO).
Napo: forest around Bermejo Oil Fields north of Lumbaqui, alt. 850 m, 9 Feb. 1986, *C. Luer, J. Luer, A. Hirtz, W. Flores & A. Hirtz 11743* (MO); new road between Archidona and Coca, alt. 1000 m, 19 Feb. 1990, *S. Dalström & Årnby 1387* (MO); Macas, cultivated by E. Sánchez in Cuenca, 26 July, 2004, *A. Hirtz 8860* (MO).
Pastaza: near Puyo, alt. ca. 1000 m, July 1977, *C. Luer et al. 1073* (SEL); between Río Negro and Mera, alt. 1500 m, 28 Mar. 1984, *C. Luer, S. Dalström, T. Höijer & J. Kuijt 9779* (MO).
Morona-Santiago: between Mendez and Morona, alt. 1000 m, 19 Jan. 1989, *A. Hirtz 4141* (MO); Chiviasa, east of Limón, alt. 1300 m, 21 Oct. 1999, *A. Hirtz & E. Sánchez 7027* (MO); near Bomboiza, cultivated by Ecuagenera, Gualaceo, 17 Apr. 2001, *A. Hirtz 7635* (MO); near Macas, cultivated in Macas by S. Arévalo, 1 Mar. 2001, *C. Luer 19573* (MO).
Zamora-Chinchipe: between Loja and Zamora, alt. 2200 m, 2 Mar. 1982, *C. Luer & A. Andreetta 7081* (SEL); south of pass south of Yangana, alt. 2000 m, 18 Mar. 1984, *C. Luer, S. Dalström, T. Höijer & J. Kuijt 9604* (MO); along Río Valladolid above the town, alt. 1800 m, 16 Apr. 1986, *D. D'Alessandro 583* (MO); Cordillera del Condor, east of Paquisha, alt. 1300 m, 23 Jan. 1992, *C. Luer, J. Luer, A. Hirtz, A. & P. Jesup 16129* (MO).

Stelis calothece was described by Schlechter from a collection by Father Millé in the well-known Pululahua crater near the equatorial marker north of Quito. A relatively frequent species, described as *Stelis porphyrea* Luer & Hirtz in *Icones Pleurothallidinae* 24, Part One, Fig. 78., answers the description of *S. calothece*.

This small species, widely distributed in Ecuador, is related to the smaller *Stelis guianensis* Rolfe and the much larger *S. argentata* Lindl. It is characterized by a caespitose habit with leaves sometimes suffused with purple. The raceme is simultaneously several-flowered, and exceeds the leaf in length. The sepals are either shortly pubescent or glabrous, broadly ovate, obtuse, and more or less equal; the petals are concave and three-veined; and the lip is type-C with a sharp apiculum in the center of the apical margin.

356. **Stelis carta** Luer & Hirtz, sp. nov.

Ety.: From the Greek *kartos*, "shorn close," referring to the short, dense pubescence.

Species haec *Stelidis pilosissimae* Luer affinis, sed racemo subflexuouso longiore, sepalis densissime brevipubescentibus ad basim concavis, et labello proportione majore differt.

Plant small, epiphytic, caespitose; roots slender. Ramicauls erect, slender, 1.5-2.5 cm long, enclosed by a tubular sheath from below the middle and 2-3 other sheaths about the base. **Leaf** erect, coriaceous, narrowly elliptical, acute, long-petiolate, 3.5-5 cm long including a petiole 1-1.5 cm long, 1 cm wide, narrowly cuneate below into the petiole. **Inflorescence** an erect, loose, distichous, subflexuous, successively flowering raceme, to 12 cm long, including the peduncle ca. 2 cm long, with few flowers open simultaneously, with a slender spathe ca. 5 mm long below the apex of the ramicaul; floral bracts oblique, acute, 2.5 mm long; pedicels 2 mm long; ovary 1.5 mm long; **sepals** dark purple, expanded, slightly convex, concave basally, densely short-pubescent within, the dorsal sepal broadly ovate, 4 mm long, 4.5 mm wide, 5-veined, the lateral sepals oblique, 3 mm long, 3 mm wide, 4-veined; **petals** cream, transverse ovate-triangular, concave below the apical margin thick, broadly rounded, margin, 1.3 mm long, 2 mm wide, 3-veined, concave basally below a broad, transverse callus; **lip** cream, thick, subsemiorbicular, 0.8 mm long, 1.3 mm wide, 1.3 mm deep, shallowly concave within a broadly rounded margin, the bar with a superficial glenion, the dorsum narrowly oblong, pubescent, the base broadly truncate, hinged to the base of the column; **column** stout, terete, 1 mm long, 1 mm wide, the anther and bilobed stigma apical.

ECUADOR: **Morona-Santiago**: Pangui Alto, alt. 1000 m, cultivated by Lester Lapo at Ecuagenera, July 2004, *A. Hirtz 8791* (Holotype of *S. carta*: MO), C. Luer illustr. 20951.

This species, known only from the collection of the type in southeastern Ecuador, appears superficially similar to *Stelis pilosissima* Luer, but it differs from the latter by a longer, subflexuous raceme. The flowers are of similar size, but the dense pubescence of *S. carta* Luer & Hirtz is very short, and the similar, thickly discoid lip, a variation of type-A, is proportionately larger. The sepals are concave basally to acommodate the petals and lip.

357. **Stelis ciliaris** Lindl., Companion Bot. Mag. 2: 353, 1836.

Ety.: From the Latin *ciliaris*, "ciliate," referring to the sepals.

Syn.: *Stelis atropurpurea* Hook., Hooker's Bot. Mag. 69, t. 3975, 1842.
Ety.: From the Latin *atropurpureus*, "dark purple," referring to the color of the flowers.

Syn.: *Stelis micrantha* var. *atropurpurea* (Hook.) Josst, Orchid. 38, 1851.

Syn.: *Stelis confusa* Schltr., Beih. Bot. Centralbl. 36(2): 386, 1918.
Ety.: From the Latin *confusus*, "confused," alluding to the status of the species.

Syn.: *Stelis jimenezii* Schltr., Beih. Bot. Centralbl. 36(2): 389, 445, 1918.
Ety.: Named for the collector, O. Jimenez.

Syn.: *Stelis pendulispica* Ames, Bot. Mus. Leafl. Harvard Univ. 2(6): 85, 1934.
Ety.: From the Latin *pendulispicus*, "with pendulent spike," referring to the inflorescence.

Syn.: *Stelis fimbriata* R.K.Baker, Ann. Missouri Bot. Gard. 55(1): 68, 1968.
Ety.: From the Latin *fimbriatus*, "fimbriate," referring to the ciliate sepals.

Syn.: *Stelis gratiosa* Luer, Selbyana 5(2): 192, 1979.
Ety.: From the Latin *gratiosa*, "favorite, lovely," referring to pleasing qualities of the plant.

Syn.: *Apatostelis ciliaris* (Lindl.) Garay, Bot. Mus. Leafl. Harvard Univ. 27: 188, 1980.
Syn.: *Apatostelis pendulispica* (Ames) Garay, Bot. Mus. Leafl. Harvard Univ. 27: 190, 1980.
Syn.: *Apatostelis garayi* Dunst., Bull. Amer. Orchid. Soc. 50: 1075, 1981.

Syn.: *Stelis garayi* (Dunst.) Carnevali & I.Ramirez, Ann. Missouri Bot. Gard. 77(3): 556, 1990,

Plant medium in size to large, epiphytic, caespitose; roots slender. Ramicauls erect, slender to stout, 2-3.5 cm long, enclosed by 2-3 tubular sheaths. **Leaf** erect, coriaceous, elliptical-obovate, subacute to obtuse, 9-15 cm long including the petiole 1.5-3 cm long, 1.5-4 cm wide, cuneate below into the petiole. **Inflorescence** a more or less drooping, dense, distichous, cylindrical, many-flowered raceme with many flowers open simultaneously, 8-17 cm long including the peduncle 2-8 cm long, sparsely bracted, from an annulus below the apex of the ramicaul; floral bracts oblique, infundibular, 1.5-2 mm long; pedicels 1-2 mm long; ovary 1-2 mm long; **sepals** expanded, red-purple, glistening cellular, thinly ciliate, longer ciliate toward the apex, glabrous externally, connate basally, ovate, obtuse, the dorsal sepal 2.5-5 mm long, 2-4.5 mm wide, 3-veined, the lateral sepals 2.5-5 mm long, 2-4.5 mm wide, 3-veined; **petals** purple, transversely cuneate-obovate, shallowly concave, 0.8-1.25 mm long, 1-1.5 mm wide, 1-veined, the apex broadly rounded with the margin thickened; **lip** purple, obovoid, shallowly concave, 1-2 mm long, 1-1.75 mm wide, the apex broadly rounded, the base transversely thickened with a small glenion, truncate, hinged to the base of the column; **column** stout, 1 mm long, the foot obsolescent, the anther and the confluent stigma apical.

MEXICO: Without locality: *T. Hartweg s.n.* (Holotype of *S. ciliaris*: K). **Veracruz**: Mirador, cultivated at the Royal Botanic Gardens, Kew, Feb. 1839, Feb. 1839, *J. Linden 213* (K); Mirador, alt. 3,000 ft., Nov. 1911, *C. Heller s.n.* (W). Without locality: *A.R. Endres 32* (W); flowered in cultivation by the late Duke of Bedford at Woburn, Feb. 1839, sent by *Mr. Parkinson, s.n.* (holotype of *S. atropurpurea*: K); Zacuapan, Mar. 1913, *C.A. Purpus 2122* (holotype of *S. confusa* destroyed at B; AMES ill 23706 of holotype). **Veracruz**: Amatlán de los Reyes, alt. 650 m, 26 June 1990, *C. Huerta 32* (AMO). **Campeche**: Ruinas de Chincaná, 20 Mar. 1984, *E. Hagsater & R. Triay 2319* (MEXU, MO). **Quintana Roo**: between San José and Tomás Garrido, 8 May 1980, *O. Téllez 2152* (MEXU). **Chiapas**: between Ocosingo and Palenque, alt. 244 m, 21 Feb. 1977, *Thurston 1402 sub E. Hagsater 5003* (AMO, MO).
GUATEMALA: **Alta Verapaz**: Chocón plantation, 26 Mar. 1885, *S. Watson 361* (AMES); near Cobán, flowered in cultivation by O. Mittlestaedt in Cobán, 29 Nov. 1990, *C. Luer 14864* (MO). **Petén**; forest of Tikal, alt. 180 m, 22 Feb. 1981, *C. Luer & J. Luer 5860* (SEL). **Izabal**: vicinity of Quiriguá, alt. 75-225 m, 15 May 1922, *P.C. Standley 23900* (AMES).
BELIZE: Yeacos Lagoon, 7 Mar. 1907, *M.E. Peck 925* (AMES); Maskall, 31 Mar. 1934, *P.H. Gentle 1196* (AMES, MO); Toledo district, Cowpen, Swasey, branch of Monkey River, 30 Mar. 1942, *P.H. Gentle 4014* (AMES).
HONDURAS: **Atlantida**: slopes of Mt. Cangrejal, along Danto river, alt. 800 m, 30 July 1938, *T.G. Yuncker et al. 8709* (AMES, MO).
NICARAGUA: **Zelaya**: between Suina and Rosita, alt. 450 m, *A.H. Heller 4664* (SEL).
COSTA RICA: **San José**: La Verbena, Alajuelita, 25 Feb. 1912, *O. Jimenez 621* (Holotype destroyed at B; lectotype for *S. jimenezii* Schltr. here designated: CR); Candelaria, El Salvaje, alt. 1700 m, 3 Aug. 1925, (holotype of *S. pendulispica*: AMES). **Cartago**: Estrella valley, Pandora, alt. 50 m, 25 Sept. 1925, *A. Alfaro 141* (AMES, US).

PANAMA: **Panama**: Cerro Jefe, alt. 1000 m, 2 Mar. 1976, flowered in cultivation 8 May 1977, *C. Luer, J. Luer & P. Taylor 1619* (holotype of *S. gratiosa*: SEL); Cerro Jefe, mossy forest near summit, alt. 2900 ft., 11 Feb. 1967, *R.K. Baker 249* (holotype of *S. fimbriata* Baker: MO, missing, neotype for *S. fimbriata* here designated: *A. Gentry & S. Mori 13182*: MO).
Darien: Cerro Tacarcuna, Serrania del Darien, alt. 700 m, *A. Gentry & S. Mori 13182*: MO);
VENEZUELA: **Bolívar**: Salto Paravan, Río Yuruan, alt. ca. 250 m, *G.C.K. Dunsterville 1418* (holotype of *S. garayi*: AMES).
ECUADOR: **El Oro**: northwest of Zaruma, alt. 1250-1500 m, 21 Apr. 1989, *C.H. Dodson, N. Williams, R. Dressler & A. Embree 18031* (MO); Zaruma, alt. 1300 m, cultivated by Ecuagenera, Gualaceo, 7 July 2002, *A. Hirtz 8331* (MO), C. Luer illustr. 20206.

This species is relatively frequent and variable in its wide distribution from Mexico through Panama, with a population in southwestern Ecuador, where several other Central American species occur. Usually the sepals are about two millimeters long and broad, but unusually large flowers with sepals up to five millimeters long occur. This large variation was described by Schlechter as *Stelis jimenezii*, and *S. gratiosa* by Luer. Usually the sepals are long-ciliate, especially toward the apices, but these fine, cellular hairs are often difficult to see or lost on dried specimens, which accounts for the descriptions by Schlechter of *S. confusa* and *S. jimenezii*.

Stelis ciliaris is a distinctive species with the cylindrical, more or less drooping raceme of numerous, densely packed, purple flowers with purple, ciliate sepals. The cuneate petals are not remarkable except for their small size, but the lip is obovoid, shallowly concave below a small glenion, and with the apex broadly rounded.

358. **Stelis coarctata** Luer, sp. nov..

Ety.: From the Latin *coarctatus*, "compressed, shortened," referring to the very short ramicauls.

Plant small, epiphytic, caespitose; roots proportionately thick. Ramicauls erect, proportionately stout, 1 mm or less long, and enclosed by a tubular sheath about the same length. **Leaf** erect, thickly coriaceous, elliptical, obtuse, subpetiolate or very shortly petiolate, 7-13 mm long, 4.5-5.2 mm wide, 2.5 mm thick, broadly cuneate below into the base. **Inflorescence** an erect, subcongested, secund secund, several-flowered raceme with most flowers open simultaneously, to 4.5 cm long including the peduncle 2.5 cm long, from near the base of the ramicaul; floral bracts infundibular, oblique, acute, 1.5 mm long; pedicels 1 mm long; ovary 0.5 mm long; flowers yellow; **sepals** glabrous externally, microscopically cellular-pubescent, broadly ovate, obtuse, deeply connate to near the middle, with the margins delineated, the dorsal sepal, 1.75 mm long, 2.2 mm wide, 3-veined, the lateral sepals oblique, 1 mm long, 1.75 mm wide, 3-veined; **petals** transversely ovate, 0.5 mm long, 0.75 mm wide, 1-veined, the apex broadly rounded, thickened, concave below a transverse calllus; **lip** thick, subquadrate, 0.3 mm long, 0.6 mm wide, 0.4 mm deep, shallowly concave anteriorly with a small glenion, the apex obtuse, the dorsum with pubescent, midline callus, the base truncate, hinged to the base of the column; **column** stout, 0.5 mm long, 0.5 mm wide, the foot obsolescent, the anther and the stigma apical, the stigma bilobed.

ECUADOR: **Zamora-Chinchipe**: Cordillera del Condor, east of Los Encuentros, alt. 1650 m, 21 Jan. 1989, *C. Luer, J. Luer, A. Jesup & P. Jesup 14047* (MO).

This small species, known only from the original collection, is similar in habit to *Stelis coriifolia* Lindl. from coastal Venezuela. The ramicaul is very short, reduced to one millimeter long. The erect, overlapping leaves are thickly elliptical, and are far surpassed by the tiny-flowered raceme. The sepals are three-veined, deeply connate and broadly obtuse; the petals are single-veined and transversely ovate with a thickened margin; and the subquadrate lip is obtuse with a pubescent callus on the dorsum.

359. **Stelis columnaris** Lindl., Folia Orchid. *Stelis* 15(144), 1858.

Ety.: From the Latin *columnaris*, "columnar," in allusion to the elongated column.

Plant medium in size, epiphytic, ascending to long-repent, up to 30 cm long or longer, the rhizome stout, 1.5-3 cm long between ramicauls; roots slender at base original ramicaul. Ramicauls ascending, stout, 2-5 cm long, enclosed by 3 tubular sheaths. **Leaf** erect, coriaceous, narrowly elliptical-obovate, subacute, 3.5-6 cm long including a petiole 0.5-1 cm long, 0.7-1.4 cm wide, narrowly cuneate below into the petiole. **Inflorescence** an erect, flexible, congested, distichous, simultaneously several- to many-flowered raceme, 9-11 cm long including the peduncle 4-6 cm long, from an annulus below the apex of the ramicaul; floral bracts oblique, acute, 2 mm long; pedicels 1.5-2 mm long; ovary 0.75 mm long; **sepals** connate basally to form a cup, expanded above, papillose, purple or yellow, broadly ovate, obtuse, connate 1 mm, the dorsal sepal 3 mm long, 2.5 mm wide, 3-veined, the lateral sepals 2.5 mm long, 2.4 mm wide, 3-veined; **petals** thin, concave, transversely elliptical-oblong, the apex transverse with the margin slightly thickened, with the ends rounded, 0.5 mm long, 1.3 mm wide; **lip** discoid, suborbicular, 1 mm long, 1 mm wide, 0.3 mm deep, the apex broadly rounded with a microscopic apiculum, shallowly concave anteriorly with a very small glenion at the bar, the dorsum flat, pubescent, truncate, hinged to the base of the column; **column** slender, erect, with the gynostemium elongate, 1.5 mm long, 1 mm wide across the stigmatic lobes, the foot obsolescent, the anther and the bilobed stigma apical.

ECUADOR: **Pichincha**: west side of the Andes, 1854, *W. Jameson s.n.* (Holotype of *S. columnaris*: K); road cut west of Nono, alt. 3200 m, 9 Mar. 1976, *C. Luer, J. Luer & P. Taylor 777* (SEL); near Lloa, alt. 2700 m, 27 Oct. 1979, *C. Luer, J. Luer & A. Hirtz 4353* (SEL); between Tandayapa and Mindo, alt. 2320 m, 13 Mar. 1982, *C. Luer, A. Hirtz & S. Dalström 7281, 7293, 7303, 7304* (SEL); mining road above Minas Toachi, alt. 2000 m, 27 Feb. 1982, *A. Hirtz & X. Hirtz 104, 116* (SEL); new road between Quito and Santo Domingo, alt. 2100 m, 31 Mar. 1984, *C. Luer, S. Dalström, T. Höijer, J. Kuijt & A. Hirtz 9813* (MO); above Tandapi, alt. 2100 m, 31 Mar. 1985, *C. Luer, J. Luer, A. & X. Hirtz 11026, 11027* (MO); Río Alambi, between Nono and Nanegal, alt. 2250 m, 24 Feb. 1985, *U. Molau & L. Öhman 1388* (GB); between Chiriboga and Santo Domingo, alt. 1950 m, 28 May 1988, *C. Luer & A. Hirtz 13710* (MO); near Los Bancos, alt. 1650 m, 25 Feb. 2001, collected by S. Dalström & L. Jost, *C. Luer 19528* (MO); between Calacalí and Nanegalito, alt. 2000 m, 9 Mar. 2001, *C. Luer & A. Hirtz 19875* (MO).
Imbabura: Selva Alegre, alt. 1400 m, May 1989, *A. Hirtz & X. Hirtz 4235* (MO); Cotacachi, around the lake, alt. 2900-3100 m, 30 Jan. 1992, *M. Peñafiel, P. Méndez & M. Tamayo 895* (MO, QCNE).
Bolívar: west of Salinas and La Palma, alt. 2000 m, 10 Mar. 1991, *C. Luer, J. Luer, A. Hirtz et al. 14969* (MO).

This species is apparently endemic in the forests of central Ecuador. An elongated shaft of the column is a character shared by *Stelis eustylis* Luer & Hirtz, a species found nearby. *Stelis columnaris* is characterized by a repent habit with ascending ramicauls. Lindley's type is a small fragment that does not show the rhizome. The leaves are narrowly elliptical and surpassed by a congested raceme with small, purple or yellow flowers. The broad, obtuse sepals are papillose within. The petals are transverse, thin and small, reaching only part way up the back of the elongated column. The lip is thin and discoid, a variation of type-C.

360. **Stelis complanata** Luer & F.Werner, sp. nov.

Ety.: From the Latin *complanatus*, "compressed," referring to the peduncle.

Species haec *Stelidis platystachyae* Garay & Dunst. affinis, sed habitu floribusque minore, sepalis dense villosis, petalis uninervosis, et labello ad dorsum dense villoso differt.

Plant medium in size, epiphytic, caespitose; roots slender. Ramicauls erect, slender, 2-4 cm long, enclosed by a tubular sheath from below the middle and 2-3 other sheaths about the base. **Leaf** erect, coriaceous, narrowly elliptical, acute, long-petiolate, 4-5.5 cm long including a petiole 1-1.5 cm long, 1-1.1 cm wide in the dry state, narrowly cuneate below into the petiole. **Inflorescence** an erect, loose, distichous, slightly flexuous, successively flowering raceme, to 30 cm long, including a slender, compressed peduncle 20 cm long, with several flowers open simultaneously, with a slender spathe 7-8 mm long below the apex of the ramicaul; floral bracts oblique, acute, 2.5-3 mm long; pedicels 2.5-3 mm long; ovary 1.5 mm long; **sepals** pale lilac, expanded, slightly convex with margins more or less recurved, densely long-pubescent within, elliptical, obtuse, connate to near the base, 3-veined, the dorsal sepal 2 mm long, 1.6 mm wide, the lateral sepals 1.6 mm long, 1.5 mm wide; **petals** lilac, thin, suborbicular, concave below the broadly rounded apex with a narrow, rounded margin, 0.8 mm long,

2.2 mm wide, 1-veined; **lip** lilac, thick, subsemiorbicular, 0.6 mm long, 0.75 mm wide, 0.5 mm deep, concave anteriorly within the broadly rounded margin, the bar thick with rounded margin with a narrow, central glenion, continuing on the dorsum into a broad, long-villous callus, the base broadly truncate, hinged to the base of the column; **column** stout, terete, 1 mm long, 1 mm wide, the anther and bilobed stigma apical.

ECUADOR: **Zamora-Chinchipe**: Estación Cientifica San Francisco, between Loja and Zamora, alt. 2010 m, 7 Feb. 2005, *F. Werner 1481* (Holotype of *S. complanata* Luer & F.Werner: MO; Isotype: LOJA), C. Luer illustr. 20928.

This species, apparently endemic in southeastern Ecuador, is similar to *Stelis platystachya* Garay & Dunst., which also occurs in southeastern Ecuador but in Colombia and Venezuela as well. Most unusual is the compressed rachis, which is thin and narrow in *S. complanata*, and broader in *S. platystachya*. The sepals of *S. complanata* are also narrower, but densely long-villous; the petals are round, concave and single-veined; and the bar of the lip is thick and rounded with a densely villous callus on the dorsum.

67., **67a., 67b. Stelis concinna** Lindl., J. Bot. 1: 11, 1834; Folia Orchid. *Stelis* 6(34), 1858.

Ety.: From the Latin *concinnus*, "neat, elegant," referring to the plant.

Syn.: *Stelis flexuosa* Lindl., Ann. Mag. Nat. Hist. 12(79): 397, 1843.
Ety.: From the Latin *flexuosus*, "flexuous," referring to the zigzag rachis.

Syn.: *Stelis capillipes* Rchb.f., Bonplandia 3: 240, 1855.
Ety.: From the Latin *capillipes*, "capillary-footed," referring to the hair-like peduncle and rachis.

Syn.: *Stelis longihirta* Luer & Hirtz, Monogr. Syst. Bot. Missouri Bot. Gard. 88: 51, 2002.
Ety.: From the Latin *longihirtus*, "long-hairy," referring to the sepals.

Plant small, epiphytic, caespitose; roots slender. Ramicauls erect, slender, 5-12 mm long, enclosed by 2-3 loose, ribbed, tubular sheaths. **Leaf** erect, coriaceous, elliptical, subacute to obtuse, 10-22 mm long including a petiole 2-5 mm long, 3-7 mm wide, cuneate below into the petiole. **Inflorescence** a suberect, arching, flexible, flexuous, lax, successively many-flowered raceme with 1-3 flowers open simultaneously, 3-15 cm long including the peduncle 1-4 cm long, from an annulus below the apex of the ramicaul; floral bracts infundibular, acuminate, 1-1.25 mm long; pedicels 1.5 mm long; ovary 0.75 mm long; **sepals** rose or purple, similar, ovate, obtuse, with the margins often revolute, long-pubescent, especially toward the apices, connate basally, the dorsal sepal 1.5-2.25 mm long, 1.25-1.5 mm wide, 3-veined, the lateral sepals widely spread, 1.25-2 mm long, 1-1.5 mm wide; **petals** purple, transversely elliptical-oblong, thin, shallowly concave, 0.75-1 mm long, 0.8-1.25 mm wide, the apex broadly rounded, narrowly thickened on the margin; **lip** purple, cuneate, 0.5-0.75 mm long, 0.5-0.8 mm wide, the apex obtuse, thickened centrally, shallowly sulcate, extending forward anteriorly as a narrow glenion, minutely pubescent at the base, the base truncate, hinged to the base of the column; **column** stout, 0.5-0.8 mm long, 0.8 mm wide, the foot obsolescent, the anther and the bilobed stigma apical.

ECUADOR: **Los Rios**: foot of Pisagua without date, *Col. Hall s.n.* (Holotype of *S. concinna* Lindl.: K; without data, *Col. Hall s.n.,* drawing at K).
Carchi: between Tulcán and Maldonado, alt. 2100 m, 20 May 1973, *L. Holm-Nielsen, S. Jeppesen, B. Løjtnant & B. Ølgaard 6054* (AAU, AMES).
Pichincha: Valley of Lloa, (R.77), *W. Jameson 265* (holotype of *S. capillipes*: W, isotypes: AMES, BM, BR, G, K, LE); forests of the Andes, alt. 10,000 ft., *W. Jameson 77* (K, W); Quito, *Karsten s.n.* (W); Calacalí, alt. 3,000 m, 30 Nov. 1880, *F.C. Lehmann 356* (G, W); above Tandayapi, alt. 2500 m, 31 Mar. 1985, *C. Luer, J. Luer, A. & X. Hirtz 11015* (MO); west flank of Iliniza, Cerro Azul, alt. 2800 m, 23 Jan. 1987, *C. Luer, J. Luer & A. Hirtz 12454* (K, MO); new road to Nanigalito, alt. 2200 m, 15 Feb. 1988, *U. Molau & B. Eriksen 3046* (GB).
Imbabura: La Floresta, near Sigsipamba, alt. 8,900 ft., 6 Sept. 1944, *W.B. Drew E-261, 269* (AMES); Selva Alegre, alt. 2850 m, 6 Apr. 1984, *C. Luer, S. Dalström & T. Höijer 9978* (MO).
Carchi: eastern slopes of Tulcán alt. 3,200 m, 4 Feb. 1881, *F.C. Lehmann 357* (W).
Tungurahua, Valle de Leito, Apr. 1859, *R. Spruce 5951* (K, W).
Morona-Santiago: north of the pass north of Gualaquiza, alt. 1700 m, 17 Feb. 1986, *C. Luer, J. Luer, A. Hirtz, W. Flores & A. Embree 11878* (holotype of *S. longihirta*: MO).
Zamora-Chinchipe: new road between Loja and Zamora, alt. 2250 m, 22 May 1988, *C. Luer, A. Hirtz, A. Andreetta & W. Teague 13600* (MO); Estación Cientifica San Francisco, between Loja and Zamora, alt. 2300 m, 23 Mar. 2004, *F. Werner 864* (MO); Cordillera del Condor, east of Los Encuentros, alt. 1300 m, 19 May 1988, *C. Luer, A. Hirtz, A. Andreetta & W. Teague 13476* (MO).

VENEZUELA: **Falcón**: Sierra de San Luís near Curimagua, alt. 4,000 ft., collected by C. García, cultivated Oct. 1959 by *G.C.K. Dunsterville 522.*
Táchira: Páramo de Tamá, alt. 2400 m, 6 June 1967, *G.C.K. Dunsterville 77.* and Oct. 1959, GCKD 522.
COLOMBIA: data lost, *Killip 34080*
PERU: **Huánuco**: Casapi, *Mathews 1909* (holotype of *S. flexuosa*: K, sterile).

This species is variable and relatively frequent in the Andes of Ecuador, and apparently less frequent in the other Andean nations. Lindley first described it as *Stelis concinna* from a fragment collected by Colonel Hall, who was known to have collected aroud Quito and Cuenca. Reichenbach described *S. capillipes* from a collection near Quito by Jameson. It was identified by Lindley as the same as his *S. flexuosa* which he had described from a Peruvian collection by Mathews. Lindley had both Mathews's collection and the Ecudorian collection by Jameson mounted on the same sheet. A recent collection with a strict raceme with a few flowers open simultaneously was described as *Stelis longihirta* Luer & Hirtz in *Icones Pleurothallidinae* 24, Part One, Fig. 67. A more typical specimen is illustrated herein in Fig. 67a.

This small, densely caespitose species is recognized by the long, hair-like, flexible, flexuous, successively flowered racemes that eventually far surpass the leaves. The widely spread and long-pubescent sepals are ovate, but often appear narrow because of sides that are often revolute. When the sides of the sepals are recurved, as they usually are around Quito, the flowers present a distinctly different appearance. Smaller flowers with nonrecurved sepals, typical of *Stelis concinna*, occur in southeastern Ecuador. The petals are broad, thin and single-veined. The type-A lip is cuneate and filled with the bar thick and shallowly cleft with a glenion.

53. **Stelis cuencana** Schltr., Repert. Spec. Nov. Regni Veg. Beih. 8: 53, 1921.
Ety.: Named for Cuenca, the nearest city to the remote Chigüinda where the species was collected.

Syn.: *Stelis excavata* Luer & Hirtz, Monogr. Syst. Bot. Missouri Bot. Gard. 88: 44, 2002.
Ety.: From the Latin *excavatus*, "with a cavity," referring to the concave labellum.

ECUADOR: **Morona-Santiago**: forests around Chiqüinda, east Andes of Cuenca, alt. 1600-2000 m, *F.C. Lehmann 6564* (Holotype of *S. cuencana* destroyed at B: Lectotype here designted: K); around Campamento Guarumales, alt. 1650 m, 24 Mar. 1991, *C. Luer, J. Luer, A. Andreetta & L. Morocho 15247* (holotype of *S. excavata*: MO); between Indanza and Limón, alt. 1300-1600 m, 23 Mar. 1974, *G. Harling & L. Andersson 12788* (GB); north of Gualaquiza, alt. 1450 m, 16 Apr. 1985, *G. Harling & L. Andersson 24166* (GB, QCA); north of Gualaquiza, road to Indanza, alt. 1700 m, 17 Apr. 1985, *G. Harling & L. Andersson 24247* (AMES); Plan de Milagro, between Limón and Indanza, alt. 1600 m, 24 Apr. 1985, *G. Harling & L. Andersson 24540* (AMES, GB); Valle de Calagras, alt. 1500 m, 17 May 1988, *C. Luer, A. Hirtz, W. Flores, A. Andreetta & W. Teague 13411* (MO).
Pastaza: near Mera, alt. ca. 1100 m, 27 Mar. 1968, *G. Harling, G. Strom & B. Ström 7867* (GB).

This large, small-flowered species is relatively frequent but restricted to southeastern Ecuador. It was first described by Schlechter from a collection by Lehmann, and described and illustrated from a recent collection as *Stelis excavata* in *Icones Pleurothallidinae* 24, Part One, Fig. 53. Lehmann's collection was destroyed at Dahlem (Berlin).

Stelis cuencana is by characterized by one or two crowded, many-flowered racemes usually exceeding the elliptical leaf. The sepals are equally ovate and pubescent within. The type-A lip is thick, subspherical, concave anteriorly with protruding margins, obtusely angled above, continuous with the rounded apex, the bar deeply concave anteriorly with thick margins of the glenion. The short, obtuse acumen, described on the lip by Schlechter, is not present on a hydrated flower of the lectotype.

361. **Stelis debilis** Luer, Phytologia 49(3): 227, 1981.

Ety.: From the Latin *debilis*, "weak," referring to the habit of the plant.

Plant small, epiphytic, scandent, repent, the rhizome slender, 5-13 mm long between ramicauls; roots slender. Ramicauls ascending, erect, slender, 8-15 mm long, enclosed by 2 loose, tubular sheaths, and another at the base. **Leaf** erect, coriaceous, elliptical, subacute to obtuse, petiolate, 15-25 mm long including the petiole 5-7 mm long, 5-6 mm wide, cuneate below into the petiole. **Inflorescence** an erect, lax, distichous, slightly flexuous, few-flowered raceme, with 1-2 flowers open simultaneously, ca. 4 cm long including the peduncle 2 cm long, from an annulus below the apex of the ramicaul; floral bracts oblique, acute, 1.5 mm long; pedicels 1 mm long; ovary 0.5 mm long; **sepals** yellow, glabrous externally, cellular-papular within, broadly ovate, obtuse, connate basally, the dorsal sepal slightly convex, 1.75 mm long, 1.75 mm wide, 3-veined, the lateral sepals 1.5 mm long, 1.5 mm wide, 3-veined; **petals** yellow, transversely ovate-triangular, 0.6 mm long, 0.75 mm wide, 3-veined, the apex broadly subacute, with the margin thickened and flat, shallowly concave at the contracted base; **lip** yellow, thickly triangular, 0.3 mm long, 0.75 mm wide, 0.6 mm deep, the apex narrowly rounded and thick, shallowly concave anteriorly with a glenion on the callus, the dorsum with a low, rounded callus, the base truncate, hinged to the column; **column** stout, 0.3 mm long, 0.75 mm wide, the foot obsolescent, the anther and the stigma apical, the stigma bilobed.

ECUADOR: **Morona-Santiago**: near Río Calagras, alt. 1600 m, 19 Sept. 1980, *C. Luer, J. Luer et al. 5486* (Holotype of *S. debilis* Luer: SEL); same area, alt. 1550 m, 19 Jan. 1989, *C. Luer, J. Luer, A. Jesup & P. Jesup 14006* (MO); Guarumales, *A. Hirtz 7722* (MO), C. Luer illustr. 20429.
Napo: forest along the new road to Coca, north of Archidona, alt. 1200 m, 13 Apr. May 1985, *C. Luer, J. Luer, A. Hirtz & W. Flores 11228* (MO).
Zamora-Chinchipe: near pass between Loja and Zamora, alt. 3000 m, 8 Mar. 1990, *J.E. Madsen 86984* (AAU, LOJA).

This small, repent species is characterized by a slender rhizome, ramicauls less than a centimeter and a half long, petiolate leaves less than two and a half centimeters long, and a twice longer, lax, few-flowered raceme. The three-veined sepals are obtuse; the petals are thickly subacute and three-veined; and the type-A lip with a thick, obtuse apex is about as long as deep.

362. **Stelis declivis** (Lindl.) Luer, Selbyana 23(1): 44, 2002.

Bas.: *Pleurothallis declivis* Lindl., Folia Orchid. *Pleurothallis* 36, 1859.

Ety.: From the Latin *declivis*, "sloping down," referring to the decurved raceme.

Syn.: *Humboldtia declivis* (Lindl.) Kuntze, Rev. Gen. Pl. 2: 667, 1891.

Syn.: *Physosiphon inaequisepalus* Schltr., Repert. Spec. Nov. Regni Veg. Beih. 8: 50, 1921.
Ety.: From the Latin *inaequisepalus*, "with unequal sepals," referring to the longer lateral sepals.

Plant small, epiphytic, repent, 3-10 cm long, the rhizome slender, 3-5 mm long between ramicauls; roots slender. Ramicauls slender, ascending, erect, 8-15 mm long, enclosed by 2 thin, tubular sheaths. **Leaf** erect, thickly coriaceous, narrowly elliptical, subacute, 2-5 cm long including a petiole 1-3 cm long, 4-6 mm wide, 2-2.5 mm thick, the base gradually narrowed into the petiole. **Inflorescence** a subcongested, more or less simultaneously several-flowered raceme up to 12 cm long, decurved from the slender peduncle, 3-6 cm long, borne from the apex of the ramicaul; floral bracts 1.5-2 mm long; pedicels 1-3 mm long; ovary 1-1.5 mm long; **sepals** light to dark purple, glabrous, the dorsal sepal ovate to broadly ovate, concave, obtuse, 3-3.5 mm long, 2.5 mm wide, 3-veined, connate to the lateral sepals for 0.3 mm, the lateral sepals free, oblong, obtuse, 3.5-4 mm long, 1.25 mm wide, 3-veined; **petals** glabrous, translucent, oblong-quadrate, 1.2-1.5 mm long, 0.8-1 mm wide, 1-veined, the apex subtruncate with the margin thickened; **lip** greenish white to purple, oblong-obovate, 1.5 mm long, 0.8-1 mm wide, the apical half oblong, concave, broadly rounded at the apex with incurved margins, with a low, rounded callus in the center, the basal half oblong-subquadrate, covered with dense mat of long hairs that articulates with a mat of pubescence on the column-foot without a hinge; **column** wingless, semiterete, 1.5 mm long, the anther subapical and the stigma ventral.

ECUADOR: **Pichincha**: on trunks of trees on the mountains of Pillahum, *W. Jameson s.n.* (Holotype of *Pleurothallis declivis* Lindl.: K); Valley of Lloa, *W. Jameson 326* (W); "Quito," *W. Jameson s.n.* (W); near Nono, alt. 2700 m, 16 Apr. 1956, *E. Asplund 20282* (AMES, S).
Imbabura: páramo north of Ibara, alt. 3700-3800 m, 25 May 1973, *L. Holm-Nielsen, S. Jeppesen, B. Løjtnant & B. Ølgaard 6480* (AAU, SEL); páramo between Ibarra and Mariano Acosta, alt. 3500-3600 m, 9 Aug. 1976, *B. Ølgaard & Balslev 8646* (AAU, MO); Mariano Acosta, alt. 3300 m, Aug. 1997, *A. Hirtz & E. Sanchez 6585* (MO).

Azuay: above Biblian, Oct. 1864, *W. Jameson s.n.* (AMES, W); above Maribinia near Cuenca, alt. 9,000-11,000 ft., 3 Sept. 1878, *F.C. Lehmann s.n.* (AMES, W); Tinagillas, near Nabon, alt. 3800 m, *F.C. Lehmann 8216* (AMES); Páramo de Tinajillas, south of Cumbe, alt. 3200 m, *B. Løjtnant, A. & U. Molau 14948* (AAU, GB); new road west of Zorrogucho, alt. 3250 m, 16 Mar. 1984, *C. Luer, S. Dalström, T. Höijer & J. Kuijt 9521* (MO); above Lago Zorrogucho, alt. 3200 m, 15 Feb. 1986, *C. Luer, J. Luer, A. Hirtz, W. Flores & A. Embree 11785* (MO); above Molleturo, alt. 2800 m, 21 July 1985, *C.H. Dodson, P.M. & T.A. Dodson & A. Embree 15938* (MO); road to Molleturo, alt. 10,500 ft., collected by C. Head, cultivated by J&L Orchids 1288-304, 10 Dec. 1988, *C. Luer 13824* (MO); Páramo de Tinajillas, south of Cumbe, road to Oña, alt. 3300 m, 28 Jan. 1988, *V. Molau, B. Eriksen & M. Fredriksen 2714* (AAU, GB, QCA).
PERU: **Huánuco**: Mito, alt. ca. 2700 m, 8-18 Apr. 1923, *J.F. Macbride 3370* (holotype of *Physosiphon inaequisepalus* Schltr. destroyed at B, lectotype here designated: AMES; isotypes F, W).

This little species had been residing in *Pleurothallis* R.Br., its true relationship being unrecognized. It is characterized by a loose, arching raceme, about twice as long as the leaves, and with small flowers that superficially resemble species formally called *Pleurothallis*. The thick leaves are narrow, only slightly longer than the ramicauls that are produced along a creeping rhizome. The obtuse dorsal sepal is concave; the lateral sepals are oblong and free; the petals are subquadrate and truncate with the apical margin thickened; and the type-B lip is concave beyond the bar and with a brush-like callus below the middle, as commonly seen in many species of *Stelis*. The brush-like callus meets a similar brush-like patch of hairs on the under surface of the column. The column is short, semiterete, wingless, and unhooded with the anther subapical, and the stigma entire.

363. Stelis discolor Rchb.f., Bonplandia 3: 241, 1855.

Ety.: From the Latin *discolor*, "of different colors," referring to the flowers.

Syn.: *Stelis barbicollis* Lindl., Folia Orchid. *Stelis* 9(66), 1858.
Ety.: From the Latin *barbicollis*, "bearded neck," referring to the column.

Syn.: *Stelis pilostylis* Schltr., Repert. Spec. Nov. Regni Veg. 14: 123, 1915.
Ety.: From the Latin *pilostylis*, "a hairy style," referring to the column.

Syn.: *Stelis sodiroi* Schltr., Repert. Spec. Nov. Regni Veg. 14: 124, 1915.
Ety.: Named for Father Aloisius Sodiro who collected many species in Ecuador.

Plant small to medium in size, epiphytic, caespitose; roots coarse. Ramicauls erect, stout, 2-3 cm long, mostly enclosed by a loose, tubular sheath and another sheath below. **Leaf** erect, thickly coriaceous, narrowly elliptical-obovate, subacute to obtuse, 5-9 cm long, 1-1.2 cm wide, gradually narrowed below into the subpetiolate base. **Inflorescence** an erect, congested, secund, many-flowered raceme, with most flowers open simultaneously, 10-15 cm long including the peduncle 3-4 cm long, from an annulus below the apex of the ramicaul; floral bracts tubular, obtuse, 1.5 mm long; pedicels 1.75 mm long; ovary 1 mm long; **sepals** fleshy, glabrous externally, minutely pubescent within, broadly ovate, obtuse, connate basally, the dorsal sepal 3 mm long, 2.6 mm wide, 3-veined, the lateral sepals 2.5 mm long, 2.5 mm wide, 3-veined; **petals** broadly oblong, 0.75 mm long, 1 mm wide, 3-veined, shallowly concave below the broadly obtuse, thickened, cellular margin; **lip** ovate-rhomboid, 1 mm long, 0.9 mm wide, 0.5 mm deep, the apex obtuse, shallowly concave anterior to a low, longitudinal thickening, with a narrow glenion, the base truncate, densely short-pubescent, hinged to the base of the column; **column** stout, 2 mm long, 1 mm wide, the body of the column pubescent, the anther and the bilobed stigma apical.

ECUADOR: **Pichincha**: base of Pichincha, in ravines, *W. Jameson 691* (Holotype of *S. discolor*: W, Isotypes: AMES, BM, BR, G, K); base of Pichincha, suburbs of Quito, *W. Jameson s.n.* (holotype of *S. barbicollis*: K); terrestrial and lithophytic in intermediate regions, *L. Mille 4* (holotype of *S. pilostylis*: QPLS, isotype: BR); without locality, terrestrial in forest, *L. Mille 3* (holotype of *S. sodiroi*: QPLS, isotype: BR); West Cayambe, alt. 3000 m, 15 July 1983, *A. Hirtz 1148* (MO), C. Luer illustr. 20484.
Bolívar: Valley of Río Chimbo, near Guaranda, alt. 2800 m, ca. 1930, *A. Rimbach 674* (AMES, F).
COLOMBIA: **Nariño**; near Pasto, alt. 9,500 ft., 11 Oct. 1878, *F.C. Lehmann s.n.* (W).

This species is uncommon today, but it apparently was more abundant a century ago, even within the city of Quito. It is characterized by stout ramicauls that are considerably shorter than thick, narrow leaves. A congested, many flowered

raceme exceeds the leaf. The sepals are ovate and thick; the petals are transversely oblong, and the lip is elliptical, subacute and shallow. Centrally it is thickened with a narrow, longitudinal glenion, and basally it is densely pubescent adjacent to the shaft of the column which is also densely shortly pubescent, an observation first made by Lindley with his loupe and one eye.

364. **Stelis discophylla** Luer & Hirtz, sp. nov.

Ety.: From the Greek *discophyllus*, referring to the subcircular leaves.

Planta mediocris robusta breviter repens, foliis subcircularibus racimis congestis multibrevioribus, sepalis obtusis longipubescentibus, petalis tenuibus uninervis et labello ad apicem rotundo distinguitur.

Plant medium in size, epiphytic, caespitose to shortly repent, the rhizome stout, as thick as, or thicker than the ramicaul, to 5 mm long; roots slender. Ramicauls ascending to erect, stout, 2.5-4 cm long, enclosed by 3-4 tubular sheaths. **Leaf** erect, thickly coriaceous, broadly elliptical, the apex broadly obtuse to rounded, 3-4 cm long excluding a petiole 5-7 mm long, the blade 2.5-3 cm wide, rounded below, contracted into the petiole. **Inflorescence** an erect, congested, distichous, several-flowered raceme, with 2-3 flowers open simultaneously, ca. 15 mm long including the peduncle ca. 8 mm long, from an annulus below the apex of the ramicaul within the sheath; floral bracts broadly infundibular, oblique, obtuse, 2 mm long; pedicels 1 mm long; ovary 1 mm long; **sepals** purple-brown, long-pubescent, broadly ovate, obtuse, connate basally, the dorsal sepal 2.5 mm long, 2.5 mm wide, 3-veined, the lateral sepals 2.5 mm long, 2 mm wide, 3-veined; **petals** yellow, thin, broadly obovate, 0.6 mm long, 1 mm wide, 1-veined, shallowly concave, broadly rounded with a thin margin; **lip** yellow, thickly triangular, 0.6 mm long, 0.8 mm wide, 0.8 mm deep, the apex broadly rounded, very shallowly concave anterior to the bar, with a narrow glenion, the dorsum with a broad, low callus, the base broadly truncate, hinged to the column; **column** stout, 1 mm long, 0.8 mm wide, the foot obsolescent, the anther and the bilobed stigma apical.

ECUADOR: **Imbabura**: "Junín, west Imbabura, north side of Toisan," alt. 1200 m, 2007, *A. Hirtz et al. 9193* (Holotype of *S. discophylla*: MO), C. Luer illustr. 21272.

This species, known from only a single collection from northwestern Ecuador, is distinct with nearly round, more or less overlapping leaves born by stout ramicauls that are born by an even stouter, more or less repent rhizome. The small flowers are borne in a short, congested raceme. The sepals are obtuse and long-pubescent within; the petals are thin and single-veined; and the lip is broadly rounded and shallowly concave.

365. **Stelis disticha** Poepp. & Endl., Nov. Gen. Sp. Pl. 1: 47, 1838.

Ety.: From the Latin *distichus*, "in two opposite rows," referring to the flowers in the raceme.

Plant medium in size to large, epiphytic, caespitose; roots slender. Ramicauls erect, stout, 4-7 cm long, mostly enclosed by a loose, tubular sheath and another sheath below. **Leaf** erect, coriaceous, elliptical-obovate, subacute to obtuse, 7-15 cm long including a petiole 1-2 cm long, the blade 1.5-2.8 cm wide, cuneate below into the petiole. **Inflorescence** an erect, congested, distichous, many-flowered raceme, with several flowers open simultaneously, 10-20 cm long including the peduncle 1-4 cm long, from an annulus below the apex of the ramicaul within the sheath; floral bracts conspicuous, conduplicate, imbricating, oblique, acute, 9 mm long below, 6 mm long above, 3 mm wide; pedicels 3 mm long; ovary 3 mm long; **sepals** yellow, glabrous, broadly ovate, obtuse, connate basally, the dorsal sepal 3 mm long, 3.75 mm wide, 3-veined, the lateral sepals 2.75 mm long, 3 mm wide, 3-veined; **petals** purple, broadly ovate-triangular, 1 mm long, 1.75 mm wide, 3-veined, shallowly concave below the broadly obtuse, thickened margin, deeply concave at the base; **lip** purple, thickly triangular, 0.9 mm long, 1.25 mm wide, 0.9 mm deep, the apex broadly obtuse, shallowly concave anterior to the transverse bar, with a narrow glenion, the dorsum with a narrow callus continuous with the glenion, the base broadly truncate, hinged to the column; **column** stout, 1 mm long, 1 mm wide, the foot obsolescent, the anther and the bilobed stigma apical.

PERU: **Huánuco**: Cuchero, subandine, Dec. 1829, *E. Poeppig 1605* (Holotype of *S. disticha*: W; Isotype: G); Casapi, 1835, *Mathews 1913* (K).
ECUADOR: **Morona-Santiago**: south of Macas, alt. 1050 m, 15 Jan. 1989, *C. Luer, J. Luer, A. Hirtz, A. & P. Jesup 13901* (MO); between Macas and Guamote, alt. 1500 m, *A. Hirtz. X. Hirtz & J. del Hierro 6055* (MO).

This large species, described from a collection by Poeppig in Peru, is easily recognized by the strong, ceaspitose habit; large, elliptical leaves borne by significantly shorter ramicauls clad in loose sheaths; and an elongated raceme with large, imbricating, distichous, floral bracts. The flowers protrude from the bract below the tip. The sepals are broadly obtuse; the petals are broad and overlapping above the column; and the type-A lip is obtuse with a narrow glenion.

366. **Stelis donaxopetala** Luer, sp. nov.

Ety.: Named for similarity of the petals to shells of *Donax*, a genus of mollusks with small, bivalved clams known as coquinas.

Planta mediocris caespitosa racemo folio oblongo longiore, bracteis floralibus comspicuis, sepalis obtusis ciliatis lateralibus antrorsis, petalis proportione magnis concavis et labello obtuso leviter concavo ad dorsum pubiscentibus distinguitur.

Plant medium in size, epiphytic, densely caespitose; roots thick. Ramicauls erect, stout, 3.5-4.5 cm long, enclosed by a loose tubular sheath from below the middle and another tubular sheath below the middle, another below the middle and 1-2 at the base. **Leaf** erect, coriaceous, elliptical-oblong, subacute to obtuse, petiolate, 6-7 cm long including a petiole 1.5 cm long, the blade 1.2-1.8 cm wide dry, cuneate below into the petiole. **Inflorescence** an erect, strict, loose, simultaneously several-flowered raceme 13 cm long including the peduncle ca. 5 cm long, from the annulus within the sheath with a spathe 10-12 mm long; floral bracts oblique, acute, 5 mm long; pedicels 2 mm long; ovary 2 mm long; **sepals** yellowish *fide* the collector, ciliate, obtuse, 3-veined, connate 2 mm to each other to form a cup, the dorsal sepal 5 mm long, 4 mm wide, the lateral sepals oblique, antrorse, 5 mm long, 4 mm wide; **petals** subcircular, broadly obtuse with a well-defined, thickened margin, concave, 2.8 mm long, 2.3 mm wide, 3-veined; **lip** ovoid, 0.75 mm long, 2.2 mm wide, 2 mm deep, shallowly concave below a thickened bar with the apex obtuse, the dorsum thickly short-pubescent, the base truncate, hinged to an obsolescent column-foot; **column** stout, 1.5 mm long and wide, pubescent beneath, with the anther and the bilobed stigma apical.

ECUADOR: **Loja**: Cerro Toledo, jeep track to "La Torre," southeast of Yangana, alt. 3000-3200 m, 6 Apr. 1985, *G. Harling & L. Andersson 23786* (Holotype of *S. donaxopetala*: GB), C. Luer illustr. 21298.

This species, known only from this collection by Harling and Andersson, is apparently endemic at a high altitude in southern Ecuador. It is distinguished by a medium-sized, densely caespitose habit and a loose raceme longer than the leaf of about a dozen relatively large flowers. The floral bracts are conspicuous as they contain the pedicel and the ovary. The sepals are connate basally to form a cup to contain the central apparatus, but the large petals protrude from the angle between the dorsal and lateral sepals. The lip is shallowly concave, obtuse, and densely pubescent on the dorsum in apposition with the pubescent undersurface of the column.

367. **Stelis espinosae** Luer & Endara, sp. nov.

Ety.: Named for Reynaldo Espinosa of Loja, Ecuador, who collected this species.

Inter species sectionis *Stelidis* Sw., habitu parvo caespitosa, racemo congesto foliis ellipticis breviore, sepalis glabris late ellipticis obtusis subaequalibus, petalis transverse ovatis trinervis, et labello subquadrato antice concavo apicem breviter triangulari obtuso callo centrali bicalloso distinguitur.

Plant small, epiphytic, caespitose; roots slender. Ramicauls erect, stout, 2-6 cm long, enclosed by a loose, tubular sheath from below the middle and 2-3 other sheaths about the base. **Leaf** erect, coriaceous, 5-8 cm long including a petiole ca. 1 cm long, the blade elliptical, subacute, to obtuse, 1-1.5 cm wide dry, cuneate below into the petiole. **Inflorescence** an erect, congested, subflexuous, several-flowered raceme, 3 cm long, flowering from the base, with a spathe 3-4 mm long at an annulus below the apex of the ramicaul; floral bracts oblique, acute, 3-4 mm long; pedicels 1.5 mm long; ovary 1 mm long; **sepals** expanded, broadly elliptical, obtuse, glabrous, the dorsal sepal 3.5 mm long, 3 mm wide, 5-veined, but all veins incomplete, connate near the base to the lateral sepals, the laterals 3 mm long, 3 mm wide, 3-veined; **petals** transversely ovate, thickened at the broadly rounded apex, truncate, concave below a transverse callus 1.25 mm long, 1.5 mm wide, 3-veined; **lip** thickly subquadrate, concave anteriorly, 1 mm long, 1.25 mm wide, 0.9 mm deep, the apex with a broad, obtuse triangle, the bar with a deep glenion flanked by an obtuse callus on either side, the dorsum with a low, slightly convex callus, the truncate, hinged to the tip of the column-foot; **column** semiterete, 1 mm long, 1 mm wide, the foot obsolescent, the anther and the bilobed stigma apical.

ECUADOR: **Loja**: Hda. Horta-Naque, alt. 3100 m, 7 Nov. 1947, *R. Espinosa E-905* (Holotype of *S. espinosa*: AMES), C. Luer illustr. 21032.

This species of southern Ecuador is characterized by small habit with a crowded inflorescence shorter than elliptical leaves. The ovate sepals are not remarkable except for five veins in the dorsal sepal, and three veins in the lateral sepals. The petals are similar to many others in the genus with a thickened, rounded margin, a transverse callus and three veins. The type-A lip is concave anteriorly with an obtuse apex, and a bar with a deep glenion.

368., 368a. Stelis eublepharis Rchb.f., Bonplandia 3: 240, 1855.

Ety.: From the Greek *eublepharis*, "truly eyelashed," referring to the ciliate sepals.

Syn.: *Stelis brueckmuelleri* Rchb.f., ex Hook., Bot. Mag. t. 6521, 1880.

Ety.: Named in honor of Herr Brückmüller, possibly a gardner who cultivated this species.

Plant small, epiphytic, caespitose; roots slender. Ramicauls erect, slender, 1.5-4 cm long, enclosed by a tubular sheath from below the middle, and another 1-2 sheaths at the base. **Leaf** erect, coriaceous, narrowly elliptical-obovate, subacute to acute, petiolate, 2.5-5.5 cm long including the petiole 1-1.5 cm long, 5-11 mm wide, cuneate below into the petiole. **Inflorescence** an erect, subsecund, subdensely several-flowered raceme, with most flowers open simultaneously, 5-8 cm long including the peduncle ca. 2 cm long, from a spathe ca. 3 mm long at an annulus below the apex of the ramicaul; floral bracts oblique, acute, 2-3 mm long; pedicels 1-1.5 mm long; ovary 1.5 mm long; **sepals** cream to light green, occasionally suffused with purple, with a long, white pubescence within, glabrous externally, connate basally, broadly ovate, obtuse, the dorsal sepal 2-3.5 mm long, 2.5-3 mm wide, 3-veined, the lateral sepals oblique, 2-3 mm long, 2-2.5 mm wide; **petals** green to purple, transversely obovate, 1 mm long, 1.75 mm wide, 3-veined, shallowly concave, the apex broadly rounded, with the edge thickened and crystalline; **lip** green or purple, thickly discoid, 0.6 mm long, 1 mm wide, 1 mm deep, the apex broadly obtuse, shallowly concave anteriorly with a narrow glenion on a rounded bar, the dorsum broadly truncate, long-pubescent, deflexed on the back of the blade, hinged to an elongated column-foot; **column** stout, 1 mm long, 1.25 mm wide, the foot elongate, the anther and the stigma apical, the stigma bilobed.

ECUADOR: **Pichincha**: Quito, on trunks of trees, Pululagua, *W. Jameson 264* (Holotype of *S. eublepharis*: W; Isotypes: AMES, B, BM, BR, G, K, LE); on trunks of trees near Lloa, alt. 9,000 ft., *W. Jameson s.n.* (K). Without collection data, flowered in cultivation at Kew, 25 Nov. 1878, via *Veitch s.n.* (holotype of *S. brueckmuelleri*: K); near San José, southwestern slopes of Montaña mojanda, alt. 2500 m, 4 Jan. 1880, *F.C. Lehmann 536* (W); Calacalí, alt. 3000 m, 30 Nov. 1881, *F.C. Lehmann 330* (W); Tandayapa, between Nono and Nanegal, 1200 m, Sept. 1984, *A. Hirtz 1894* (MO).
Carchi: Bolívar, above La Paz, alt. 3100 m, 18 Feb. 1998, *C. Luer, J. Luer, A. Hirtz & J. del Hierro 18721* (MO).
Sucumbíos: near El Carmelo, alt. 2050 m, 17 May 1981, *C. Luer, J. Luer & A. Hirtz 6301* (SEL).
Imbabura: Cerro Muenala, above Asabi, alt. 8,500 ft., 12 Mar. 1943, *W.B. Drew E-55* (AMES); edge of páramo west of Otavalo, alt. 3000 m, 17 Feb. 1978, *C. Luer, J. Luer & A. Hirtz 2610* (SEL).
Napo: between Baeza and Papallacta, alt. 2600 m, 14 Apr. 1985, *C. Luer, J. Luer, A. Hirtz & W. Flores 11276* (MO); Cuyujúa, 2800 m, cultivated in Quito by *A. Hirtz 7115* (MO), C. Luer ill. 20459.
Tungurahua: slope of Volcán Tungurahua above Baños, alt. 3000 m, 27 Mar. 1984, *C. Luer, S. Dalström, T. Höijer & J. Kuijt 9759* (MO).

Stelis eublepharis was described in 1855 by Reichenbach from a collection by Jameson within the Pululahua crater north of Quito. Twenty years later, plants from an unrecorded source were imported by Veitch and cultivated at the Royal Horticultural Nurseries at Chelsea. A plant was given to the Royal Botanic Garden at Kew where a painting was made when it flowered in 1878. It was described again by Reichenbach, and published as *Stelis brueckmuelleri* in Curtis's *Botanical Magazine.* It is the only member of the genus to be honored by a plate in this prestigious journal.

The habit of this little species is not remarkable with the raceme exceeding the leaf. The sepals are covered by a very fine, long, white pubescence, some hairs being one millimeter long. The petals are three-veined, and the lip, between type-B and type-C, is shallowly concave with an obtuse apex and a thick transverse bar overlain by an elongated glenion. The depth of the dorsum is finely puberulent as it continues down the back of the blade of the lip. Two variations are illustrated.

369. **Stelis exquisita** Luer, sp. nov.

Ety.: From the Latin *exquisitus*, "exquisite, choice" referring qualities of the flower.

Species haec *Stelidis fabulosae* Luer & Endara affinis, sed habitu inflorescentiaque minoribus, sepalis angustissime ovatis acutis, et labello antice profunde excavato apiculato differt,

Plant small to medium in size, epiphytic, densely caespitose; roots slender. Ramicauls erect, slender, 5-8 cm long, enclosed by a tubular sheath from below the middle and 2-3 other sheaths at the base. **Leaf** erect, coriaceous, narrowly oblong, obtuse, 7-8 cm long, 0.7-1 cm wide in the dry state, gradually narrowed below into a petiole ca. 1.5 cm long. **Inflorescence** an erect, congested, secund, many-flowered raceme with most flowers open simultaneously, 10-11 cm long including the peduncle 1-2 cm long, subtended by a spathe ca. 0.9-1 cm long, from an annulus below the apex of the ramicaul; floral bracts tubular, obtuse, 2 mm long; pedicels 1.5 mm long; ovary 1.5-2 mm long; **sepals** yellow-green, glabrous, connate basally, narrowly ovate, acute, expanded, the dorsal sepal 3-3.5 mm long, 1.5 mm wide, 3-veined, the lateral sepals 3-3.5 mm long, 1.5 mm wide, 3-veined; **petals** membranous, transversely obovate, shallowly concave, 0.6 mm long, 0.9 mm wide, faintly 3-veined, the apex broadly rounded with a narrow margin; **lip** ovoid, 0.75 mm long, 0.4 mm wide, 0.75 mm deep, deeply concave above the middle, the margin thin with a small, triangular, protruding apiculum, the bar cleft near the middle, with a pair of low calli extending back from the edge to a rounded zone of minute papillae above the base, the base broadly truncate, hinged to the column; **column** stout, 1 mm long, 0.75 mm wide across the stigmatic lobes, the foot obsolescent, the anther and the expanded, bilobed stigma apical.

ECUADOR: **Loja**: Nudo de Sabanillo, 10 km above Yangana, alt. 2500 m, 3 Apr. 1985. *G. Harling & L. Andersson 23617* (Holotype of *S. exquisita*: GB), C. Luer illustr. 21300.

This dainty species, a relative of the much larger *Stelis fabulosa* Luer & Endara, is known from only the original collection in southern Ecuador. Narrowly oblong, obtuse leaves are surpassed by a simultaneously many-flowered raceme of small flowers with the three equal, narrow sepals expanded. The petals are faintly three-veined. The ovoid lip, smaller than the column, is deeply concave above the middle with a small, triangular apiculum; below the middle the lip is thick with a cleft bar, and a pair of calli extending back from the bar to a round patch of minute papillae above the base.

370. **Stelis flagellaris** Luer & Hirtz, sp. nov.

Ety.: From the Latin *flagellaris*, "flagellate," referring to the long, whiplike racemes.

Planta mediocris dense caespitosa, recemis dense multifloris folio anguste elliptico multilongiore, bracteis inflatis, sepalis ovatis obtusis lateribus revolutis, labello transverse quadrato distinguitur.

Plant medium in size, epiphytic, densely caespitose; roots slender. Ramicauls erect, slender, 6-9 cm long, with a close, tubular sheath above the middle and 2 other sheaths at the base. **Leaf** erect, coriaceous, narrowly elliptical, acute, 7-8 cm long, 1-1.5 cm wide, narrowed below into a petiole 1.5-2 cm long. **Inflorescence** 1 or 2 erect, congested, distichous, many-flowered raceme with most flowers open simultaneously, 18-25 cm long, including a peduncle 2-4 cm long, with a spathe 1 cm long, from an annulus near the apex of the ramicaul; floral bracts infundibular, inflated, oblique, obtuse, 3 mm long, 3 mm wide; pedicels 1.5 mm long; ovary 2.5-3 mm long; **sepals** purple, glabrous, broadly ovate with the sides revolute, obtuse, connate basally, the dorsal sepal 6 mm long, 5 mm wide expanded, 5-veined, the lateral sepals 5 mm long, 4.5 mm wide expanded, 4-veined; **petals** yellow, thick, transversely ovate, 1.3 mm long, 2 mm wide, 3-veined, concave below the broadly rounded, thickened margin; **lip** yellow, transversely subquadrate, 0.6 mm long, 1.5 mm wide, 1 mm deep, shallowly concave anteriorly within the broadly rounded apical margin, the bar with a glenion extending, the dorsum with a low, broad callus that fills most of the dorsum, the base broadly truncate, hinged to the base of the column; **column** stout, 1.5 mm long, 1.5 mm wide, the anther and bilobed stigma apical.

Ecuador: **Imbabura**: "Junín, west Imbabura, north side of Toisan," alt. 1200 m, 2007, *A. Hirtz 9176* (Holotype of *S. flagellaris*: MO), C. Luer illustr. 21268.

This distinctive species is characterized by narrowly elliptical, petiolate leaves; very slender, somewhat longer ramicauls; and much longer, densely many-flowered racemes produced one or two simultaneously from a one-centimeter-long spathe. The sepals are broad but with the sides revolute; the petals are thick and three-veined; and the lip is type-A, transversely oblong and short.

58., 66. **Stelis floresii** Luer & Hirtz, Monogr. Syst. Bot. Missouri Bot. Gard. 88: 47, 2002.

Ety.: Named for Washington Flores of Quito, Ecuador, co-collector of this species.

Syn. *Stelis limonensis* Luer & Hirtz, Monogr. Syst. Bot. Missouri Bot. Gard. 88: 51, 2002. Named for the community of Limon, near where the species was collected.

Plant medium in size, epiphytic, densely caespitose; roots slender. Ramicauls erect, slender, 3-10 cm long, enclosed by 2 loose, tubular sheaths, and another at the base. **Leaf** erect, coriaceous, narrowly elliptical, acute to subacute, petiolate, 6-8 cm long including the petiole 1.5-2.5 cm long, the blade 1-1.7 cm wide, cuneate below into the petiole. **Inflorescence** an erect, subcongested, distichous, simultaneously many-flowered raceme, 8-13 cm long including the peduncle 3-4 cm long, from an annulus below the apex of the ramicaul; floral bracts acute, oblique, 3 mm long; pedicels 1.5 mm long; ovary 1.25 mm long; **sepals** purple to light rose externally, diffusely minutely pubescent and grayish internally, expanded, broadly ovate, obtuse, subequal, connate basally, the dorsal sepal 4 mm long, 3.25 mm wide, 3-veined, the lateral sepals oblique, 3.5 mm long, 3 mm wide, 3-veined; **petals** yellow-green, semilunate, 0.75 mm long, 1.1 mm wide, shallowly concave below the broadly rounded and thickened apical margin, thick transversely, concave at the base; **lip** green or purple, subquadrate, 0.75 mm long, 1 mm wide, 0.75 mm deep, the apex broadly rounded, shallowly concave anteriorly with a faint, superficial glenion, the dorsum with a low, rounded, pubescent callus, the base broadly truncate, hinged to the base of the column; **column** stout, 1 mm long, 1 mm wide, the foot obsolescent, the anther and the bilobed stigma apical.

ECUADOR: **Tungurahua**: Cordillera de los Llanganates, Leito, alt. 2870 m, 11 Apr. 1985, *C. Luer, J. Luer, A. Hirtz & W. Flores 11139* (Holotype of *S. floresii*: MO; Isotype: SEL); same area, alt. 3150 m, 11 Apr. 1985, *C. Luer, J. Luer, A. Hirtz & W. Flores 11170* (MO).
Carchi: forest between Tulcán and El Carmelo, alt. 3200 m, 6 Apr. 1985, *C. Luer, J. Luer, A. Hirtz & W. Flores 11118* (MO); east of Gruta La Paz, alt. 3200 m, 13 Sept. 2004, *A. Hirtz et al. 9006* (MO).
Imbabura: Selva Alegre, alt. 2850 m, 6 Apr. 1984, *C. Luer, S. Dalström & T. Höijer 9977* (MO); Selva Alegre, alt. 2950 m, 1 May 1981, *C. Luer, J. Luer & A. Hirtz 6035* (SEL).
Morona-Santiago: Cordillera del Condor, east of Guismé, alt. 1500 m, 18 Feb. 1986, *C. Luer, J. Luer, A. Hirtz et al. 11904, 11913* (MO); east of the pass between Gualaceo and Limón, alt. 2650-2750 m, 16 Feb. 1986, *C. Luer, J. Luer, A. Hirtz, W. Flores & A. Embree 11829, 11838* (MO).
Azuay: collected near Gima, cultivated by Linder Suin 814, 6 Mar. 2001. *C. Luer 19782* (MO).
southeast of Oña, alt. 2800-3000 m, 8 Feb. 2005, *S. Dalström, J, Sönnemark & L. Jost 2782* (MO), C. Luer illustr. 20965.
Loja: above Yangana north of the pass, alt. 2400 m, 23 Mar. 1985, *C. Luer, J. Luer, A. Hirtz & W. Flores 10871* (MO); Parque Nacional Podocarpus, east of Nudo de Cajanuma, alt. 2900 m, 22 June 1988, *B. Ølgaard & J.E. Madsen 74904* (AAU, LOJA).
Zamora-Chinchipe: east of the pass east of Loja, alt. 2750 m, 21 Mar. 1985, *C. Luer, J. Luer, A. Hirtz & W. Flores 10721* (MO).
COLOMBIA: **Cauca**: Munic, El Cairo, Serra de los Paraguas, alt. 2100 m, 29 Mar. 1988, *P. Silverstone-Sopkin et al. 3773A* (CUVC).

This species is frequent and widely distributed in Ecuador and southern Colombia. In common with many species, it is characterized by a medium sized habit, and a many-flowered raceme surpassing an acute, elliptical, petiolate leaf. The sepals are ovate, either three- or five-veined, about four millimeters long, and shortly pubescent. The petals are three-veined, thickly margined, and with a transverse callus. The lip is type-A and shallowly concave behind an obtuse, thickened apex, and with a solitary, rounded callus on the dorsum.

A variation with narrow, acute leaves distinctly shorter than slender ramicauls was described as *Stelis limonensis* Luer & Hirtz.

371. Stelis foveata Lindl., Folia Orchid. *Stelis* 2(3), 1858.

From the Latin *foveatus*, "with cavities," referring to the labellum.

Plant medium in size, epiphytic, densely caespitose; roots slender. Ramicauls erect, slender, 4-7 cm long, enclosed by a loose tubular sheath from below the middle and another tubular sheath below the middle. **Leaf** erect, coriaceous, narrowly elliptical, subacute, petiolate, 4.5-7.5 cm long including a petiole 1 cm long, the blade 1 cm wide, narrowly cuneate below into the petiole. **Inflorescence** an erect, strict, congested, simultaneously many-flowered raceme 10-18 cm long including the peduncle

2-3 cm long, from an annulus below the apex of the ramicaul, with a spathe 9-13 mm long; floral bracts oblique, acute, 3 mm long below to 2 mm long above; pedicels 1 mm long; ovary 1 mm long; **sepals** dull white, glabrous, ovate, obtuse, 3-veined, connate basally, the dorsal sepal 3 mm long, 2.3 mm wide, the lateral sepals oblique, 2.5 mm long, 2 mm wide; **petals** red, transversely ovate, broadly rounded at the thick apex, concave, 0.75 mm long, 1 mm wide; **lip** red, oblong-ovoid, 0.75 mm long, 0.7 mm wide, 0.6 mm deep, deeply concave anteriorly with the apex rounded with a short, obtuse, ill-defined apiculum, excavate beneath a shelf-like bar, the dorsum with a broad patch of microscopic pubescence at the base, the base truncate, hinged to an obsolescent column-foot; **column** stout, 1 mm long, 0.75 mm wide, with the anther and the bilobed stigma apical.

ECUADOR: **Pichincha**: wooded ridges above the village of Guachapala, alt. 10,000 ft., *W. Jameson s.n.* (Holotype of *S. foveata*: K); road cut west of Nono, alt. 3200 m, 9 Mar. 1976, *C. Luer, J. Luer & P. Taylor 779* (SEL).

This uncommon species is apparently endemic in east-central Ecuador. It is distinguished by a medium-sized, densely caespitose habit and a densely many-flowered raceme surpassing the narrowly elliptical leaf. The sepals are ovate with the laterals more or less held forward; the petals are thick at the apex and three-veined; and the lip is deeply concave within a thin, obtuse apex. The closest relative is *Stelis juncea* Luer & Hirtz, which is distinguished most easily by the proportionately long, slender ramicauls, and petals that are only minimally thickened. Other similar species have one-veined petals.

372. **Stelis gemma** Garay, Orquideología 4(2): 77, 1969.

Ety.: From the Latin *gemma*, "a jewel," in allusion to the gem-like quality of the species.

Plant small to medium in size, epiphytic, caespitose, pendent; roots slender. Ramicauls descending, stout, 5-20 mm long, enclosed by 3 loose, imbricating, ribbed, tubular sheaths. **Leaf** pendent, overlapping, coriaceous, glaucous, broadly elliptical-ovate, obtuse, 3-7 cm long excluding the petiole 1-3 mm long, 2-3.5 cm wide, the base rounded, abruptly contracted into a petiole 1-3 mm long. **Inflorescence** a pendent, congested, distichous, successively several-flowered raceme, 2-2.5 cm long including the peduncle ca. 5 mm long, with a spathe ca. 5 mm long, near the apex of the ramicaul; floral bracts oblique, acute, 3-4 mm long; pedicels 2-3 mm long; ovary 4 mm long; **sepals** white, microscopically ciliate, ovate, obtuse, connate basally 3-4 mm, the dorsal sepal ovate, subacute to obtuse, 8-10 mm long, 6-7 mm wide, with 6-8 branching veins, the lateral sepals broadly ovate, obtuse, 7-8 mm long 7-9 mm wide, with 6-7 branching veins; **petals** purple, ovate, concave across the base, broadly obtuse to rounded and thick at the apex, 2 mm long, 1.8 m wide, 3-veined; **lip** purple, 1.3 mm long, 1.8 mm wide, 0.8 mm deep, the anterior surface superficially concave with the apex broadly rounded, with an indistinct, shallow glenion, the dorsum with a low, subtrilobed callus, the base truncate, hinged to the base of the column; **column** stout, 1 mm long, 1.8 mm wide, the foot obsolescent, the anther and the bilobed stigma apical.

ECUADOR: **Loja**: mine des Jesuites, Jan. 1883, *E. André 506* (Holotype of *S. gemma*: K); south of Baeza toward Cosanga, alt. 1800 m, 14 Apr. 1985, *C. Luer, J. Luer, A. Hirtz & W. Flores 11268* (MO); Baeza, alt. 1800 m, May 1984, *A. Hirtz 1767* (MO).
Tungurahua: Loma Chinchin Grande, alt. 1890 m, 2 Apr. 1999, *L. Jost 1527* (MO).
Without collection data, cultivated by *G. Escobar 338* (AMES).

This species is unique in the genus with the pendent, overlapping, glaucous green leaves. The plant usually hangs on erect, mossy trunks of large trees. A snow white flower with purple petals and lip is borne successively on a short, distichous raceme between the hanging leaves. The lateral sepals are distinctly larger than the dorsal sepal, and they curve slightly forward, so that the flower does not open into a flat plane. The petals are thickly ovoid; and the lip is small and broadly rounded.

60. **Stelis gigantissima** Luer, Monogr. Syst. Bot. Missouri Bot. Gard. 95: 115, 2004, replaced name for *S. gigantea* Pridgeon & M.W.Chase, 2002.

Ety.: From the Latin *giganteus*, "gigantic," referring to the size of the habit and flowers.

Bas.: *Stelis gigantea* Luer & Hirtz, Monogr. Syst. Bot. Missouri Bot. Gard. 88: 48, 2002, not *S. gigantea* Pridgeon & M.W.Chase [=*Dracontia powellii* (Schltr.) Luer].

ECUADOR: **Napo**: Cosanga, alt. ca. 1000 m, 11 Aug. 1991, *A. Hirtz & S. Ortega 5351* (Holotype of *S. gigantea* Luer & Hirtz: MO), C. Luer illustr. 19927; same area, Cosanga, alt. 1800 m, Mar. 1996, *A. Hirtz, C. Head et al. 6304* (MO); south of Baeza toward Tena, alt. 1500 m, 11 Aug. 1978, *C. Luer, J. Luer, A. Hirtz & A. Andreetta 3242* (SEL); south of Baeza, alt. 1900 m, 20 Feb. 1982, *C. Luer & A. Hirtz 6861* (SEL).

This species, apparently restricted to northeastern Ecuador at relatively low altitudes, is the largest known in the genus *Stelis*, with broadly elliptical, dinner plate sized leaves rivaling those of the largest in the Pleurothallidinae. It is described and illustrated in *Icones Pleurothallidinae* 24, Part One, Fig. 60. In addition to meter-long ramicauls and the immense size of the leaf, it is distinguished by numerous, dark purple flowers on an inflorescence three-quarters of a meter long. The lowermost flowers are the largest, measuring 27 millimeters from the tip of the dorsal sepal to the tips of the lateral sepals. The sepals are ovate, glabrous and spreading; the petals are thickly fan-shaped; and the type-A lip is small, cuneate, and concave anteriorly.

373. Stelis glumacea Lindl., Folia Orchid. *Stelis* 3(9), 1858.

Ety.: From the Latin *glumaceus*, "glumaceous (with glums), with chaffy bracts, like a spike of wheat," in allusion to the conspicuous floral bracts.

Plant large, epiphytic, densely caespitose to shortly repent; roots slender. Ramicauls erect, relatively slender, 15-20 cm long, with a loose, tubular sheath above the middle and another 2 sheaths at the base. **Leaf** erect, coriaceous, elliptical-ovate, subacute to obtuse, petiolate, 9-13 cm long including the petiole 1-1.5 cm long, the blade 3-4 cm wide, cuneate below into the petiole. **Inflorescence** an erect, distichous, congested, many-flowered raceme with most flowers open simultaneously, 16-20 cm long including the peduncle 5-8 cm long, with a spathe 1.5 cm long at an annulus below the apex of the ramicaul; floral bracts oblique, acute, 7-10 mm long; pedicels 2 mm long; ovary 2-3 mm long; **sepals** similar, sensitive, fleshy, microscopically pubescent, purple-brown, broadly ovate, broadly obtuse, connate nearly to the middle, the dorsal sepal 3 mm long, 3.5 mm wide, 5-veined, the lateral sepals 2.5 mm long, 3.5 mm wide, 5-veined; **petals** transversely ovate, shallowly concave below the broadly obtuse, thickened margin, more deeply concave below the transverse callus, 1.25 mm long, 1.8 mm wide, 3-veined; **lip** brown, obliquely subquadrate, 1 mm long, 1.5 mm wide, 1.5 mm deep, the anterior surface shallowly concave with a glenion, the apex broadly rounded and thickened, the dorsum with a low, rounded callus, the base truncate, hinged to the base of the column; **column** stout, 1 mm long, 1.5 mm wide, the foot obsolescent, the anther and the bilobed stigma apical.

ECUADOR: **Pichincha**: Andes of Quito, on the road to Nanegal, *W. Jameson s.n.* (Holotype of *S. glumacea*: K); without collection data, *W. Jameson s.n.* (K); Reserva Floristica Río Guajalito, Las Palmeras, alt 1800-2100 m, May 1997, *C. Nowicki & J. Mulke 1185* (QCA, SEL).
Imbabura: Selva Alegre, alt. 1400 m, May 1989, *A. Hirtz & X. Hirtz 4224* (MO), C. Luer illustr. 20486.

This large species could be treated as a variation of the rather common, variable *Stelis lindenii* Lindl. Lindley pointed out the large, protruding floral bracts of *S. glumacea* which he compared to a spike of wheat. Like *S. lindenii*, it is large with one or two long, crowded, many-flowered racemes of proportionately small flowers. The sepals are fleshy, broadly ovate and often close when disturbed. The unremarkable petals and lip of the two concepts are similar.

374. **Stelis grandibracteata** C.Schweinf., Bot. Mus. Leafl. Harvard Univ. 10: 1942.

Ety.: From the Latin *grandibracteatus*, "with large bracts," referring to the floral bracts.

Plant medium in size, epiphytic, densely caespitose; roots slender. Ramicauls erect, stout, 2.4-4.5 cm long, enclosed by a loose, tubular sheath, and another 1-2 sheaths at the base. **Leaf** erect, coriaceous, elliptical-obovate, obtuse to rounded at the apex, 8-10 cm long including an indistinct petiole ca. 1 cm long, 1.5-1.8 cm wide, narrowly cuneate below into the petiole. **Inflorescence** an erect, subcongested, distichous, successively many-flowered raceme, 8-12 cm long including the peduncle 3-4 cm long, with a spathe 7-9 mm long, at an annulus below the apex of the ramicaul; floral bracts conspicuous, oblique, inflated, acute, 6-8 mm long; pedicels 2 mm long; ovary 3 mm long; flowers purple; **sepals** fleshy, glabrous externally, diffusely cellular-pubescent within, broadly ovate, obtuse, the dorsal sepal 2.5 mm long, 2.8 mm wide, 3-veined, the lateral sepals connate basally, 2.25 mm long, 2.8 mm wide, 3-veined; **petals** transversely ovate, 0.8 mm long, 1 mm wide, 3-veined, concave below the broadly rounded, thickened, apical margin with numerous crystals; **lip** thick, triangular, 0.8 mm long, 0.8 mm wide, 0.5 mm deep, shallowly concave anteriorly with the apex rounded with a thickened margin, the bar with a minute glenion, the dorsum with a low, central, rounded callus, the base truncate, hinged to the base of the column; **column** stout, 0.8 mm long, 0.8 mm wide, the foot obsolescent, the anther and the bilobed stigma apical.

PERU: **Cuzco**: Cerro de Cusilluyoc, along Río Pillahuata, alt. 2300-2400 m, 3-6 May 1925, *F.W. Pennell 14006* (Holotype of *S. grandibracteata*: AMES; Isotypes F, K).
ECUADOR: **Pastaza**: forest east of Mera, alt. 1100 m, 28 Mar. 1984, *C. Luer. S. Dalström, T. Höijer & J. Kuijt 9781* (MO).
Loja: above Yangana north of the pass, alt. 2400 m, 23 Mar. 1985, *C. Luer, J. Luer, A. Hirtz & W. Flores 10866* (MO); north of the pass south of Jimbura, alt. 2600 m, 21 Feb. 1986, *C. Luer, J. Luer, A. Hirtz, W. Flores & A. Embree 11982* (MO).
Zamora-Chinchipe: Cajanuma range, south of Loja, alt. 2500 m, 21 Mar. 1985, *C. Luer, J. Luer, A. Hirtz & W. Flores 10770, 10771* (MO).

This species was described from a Peruvian collection made at about 2400 meters above sea level. The specimen collected in Pastaza at an altitude of 1100 meters differs in some minor details. The leaves are narrower and distinctly narrowly obovate instead of broadly elliptical; and the bracts are slightly larger with smaller flowers. The other collections are from higher altitudes, and agree with the collection from Peru. The species is similar to *Stelis disticha* Lindl., the greatest difference being the smaller, non-imbricating floral bracts.

40., 40a. **Stelis guianensis** Rolfe, Trans. Linn. Soc., ser. 2, Bot., 6: 59, 1901.

Ety.: Named for Guiana, where the species was first recorded.

Plant small, epiphytic, caespitose; roots slender. Ramicauls erect, slender, 5-15 mm long, enclosed by 2-3 tubular sheaths. **Leaf** erect, coriaceous, narrowly obovate, subacute, 18-25 cm long, 3-7 mm wide, gradually narrowed below into the subpetiolate base. **Inflorescence** an erect, strict, distichous, loosely several-flowered raceme 3-6 cm long including the peduncle 1-2 cm long, from an annulus below the apex of the ramicaul; floral bracts acute, 1-1.5 mm long; pedicels 1 mm long; ovary 0.5 mm long; **sepals** white to greenish white, sometimes suffused with rose, glabrous externally, densely short-pubescent within, ovate, obtuse, 3-veined, connate basally, the dorsal sepal 1.5-1.75 mm long, 1.3-1.4 mm wide, the lateral sepals 1.4-1.5 mm long, 1.2-1.4 mm wide; **petals** light green to purple, transversely oblong, broadly rounded at the apex, thin, concave, 0.5 mm long, 0.75 mm wide, 3-veined; **lip** thick, subquadrate, 0.3-0.5 mm long, 0.6 mm wide, 0.3-0.4 mm deep, shallowly concave anteriorly with the apex subretuse, with a sharp apiculum in the center, the anterior surface rounded with a long, narrow glenion, the dorsum rounded, cellular, the base truncate, hinged to an obsolescent column-foot; **column** stout, 0.6 mm long, 0.6 mm wide, with the anther and the bilobed stigma apical.

GUYANA: Roraima Range, alt. 3,500 ft., autumn 1898, *V.F. McConnell & J.J. Quelch 703* (Holotype of *S. guianensis*: K); Kaiteur Savannah, Potaro River, *Jenman 1055* (K); Kaiteur Falls, 1995, *E.A. Christenson 1930* (MO), C. Luer illustr. 17809.
VENEZUELA: **Bolívar**: 100 km south of El Dorado, alt., ca. 2,000 ft., Sept. 1959, *G.C.K. Dunsterville 519*.
ECUADOR: **Napo**: south of Baeza, alt. 1500 m, 11 Aug. 1978, *C. Luer, J. Luer, A. Hirtz & A. Andreetta 3260* (SEL); new road between Tena and Coca, alt. 1100 m, 22 Feb. 1982, *C. Luer & A. Hirtz 6955* (SEL); **Tungurahua**: forest between Río Verde and Río Negro, alt. 1500 m, *C. Luer, J. Luer, A. Hirtz & W. Flores 11180* (MO).

Pastaza: near Puyo, alt. ca. 1000 m, July 1977, *C. Luer et al. 1073* (SEL). **Morona-Santiago**: new road west of Macas toward Guamote, alt. 1100 m, 6 Feb. 1987, *C. Luer, J. Luer & A. Hirtz 12690* (MO); near Sinai north of Macas, alt. 1200 m, 28 Feb. 2001, *C. Luer, J. Luer & A. Hirtz 19566* (MO).
Azuay: near Cuenca, cultivated by E. Sánchez, 6 Mar. 2001, *C. Luer 19789* (MO).
Zamora-Chinchipe: Cordillera del Condor, east of Los Encuentros, alt. 1500 m, 19 May 1988, *C. Luer, A. Hirtz et al. 13490* (MO).

This species is variable in its wide distribution from the mountains of Guyana through Venezuela into eastern Ecuador. It is characterized by the small, caespitose habit and a distantly several-flowered raceme that surpasses the narrowly obovate leaf. The sepals are ovate, obtuse, more or less equal, and variously pubescent and ciliate; and the petals are thin and concave with three veins. Except for the small size, the lip with a minute apiculum on a rounded margin is reminiscent of *Stelis argentata* Lindl.

An illustration of this species was mistakenly used in Part One of the *Stelis of Ecuador* for *Stelis apiculifera* Luer & Hirtz.

291., **291a., 291b. Stelis hallii** Lindl., J. Bot. 1: 12, 1834.

Ety.: Named in honor of Colonel Hall who collected this species.

Syn.: *Stelis gladiata* Lindl., Folia Orchid. *Stelis* 9(61), 1858.
Ety.: From the Latin *gladiatus*, "like a sword," but to quote Lindley, "leaves shaped like a Roman sword-blade."

Syn.: *Stelis stormii* Luer & Endara, Monogr. Syst. Bot. Missouri Bot. Gard. 112: 50, 2007.
Ety.: Named for G. Storm, Swedish co-collector of this species.

Plant small to medium in size, epiphytic, caespitose to shortly repent; roots slender. Ramicauls erect, slender, 1-6 cm long, enclosed by a loose, tubular sheath and 2-3 sheaths at the base. **Leaf** erect, coriaceous, narrowly elliptical-obovate, subacute to acute, long-petiolate, 2-6 cm long including a petiole 1-3 cm long, 0.5-1.2 cm wide, narrowly cuneate below into the petiole. **Inflorescence** a single, or occasionally 2, erect, sublax, flexuous, distichous, many-flowered racemes with few to many flowers open simultaneously, 3-15 cm long including the peduncle 1-4 cm long, from an annulus below the apex of the ramicaul, with a spathe 3-5 mm long; floral bracts oblique, acute, 2-2.5 mm long; pedicels 1-1.5 mm long; ovary 1 mm long; **sepals** expanded, yellow to purple, glabrous, broadly ovate, obtuse, connate ca. 1 mm to the lateral sepals, the dorsal sepal 2-3 mm long, 2.5-3 mm wide, 3-veined, the lateral sepals 2-2.5 mm long, 2-2.5 mm wide, 3-veined; **petals** yellow or purple, transversely oblong, with the apex broadly rounded with a thick margin, shallowly concave below the middle, 0.6-0.75 mm long, 0.9-1.2 mm wide, 1-veined (occasionally with vestigial remnants of 1 or 2 more); **lip** yellow or purple, thick, transversely oblong, 0.5-0.75 mm long, 0.9-1.2 mm wide, 0.6-0.75 mm deep, the apex thickened, broadly rounded, shallowly concave anteriorly with a shallow glenion across the rounded bar, the dorsum with a low, rounded callus, the base broadly truncate, hinged to the base of the column; **column** stout, 0.75 mm long, 1 mm wide, the anther and the stigma apical, with the stigma bilobed, the foot obsolescent.

ECUADOR: **Azuay**: "trunks of trees at Turuencho near Cuenca," (later: "on trees at Surucucho, near Cuenca," *Colonel Hall s.n.* (Holotype of *S. hallii*: K); Lago Zorogucho, south of Cuenca, alt. 3000 m, 7 May 1981, *C. Luer, J. Luer & A. Hirtz 6116* (SEL); Río Collay, south of El Pan, alt. 2650-3290 m, 6 July 1943, *J.A. Steyermark 53389* (AMES).
Pichincha: Quito, *W. Jameson 99* (holotype of *S. gladiata*: K).
Tungurahua: Cordillera de los Llanganates, Leito, alt. 3100 m, 11 Apr. 1985, *C. Luer, J. Luer, A. Hirtz & W. Flores 11161* (MO); between Lieto and Triunfo, alt. 2800-3000 m, 25 Aug. 2001, *A. Hirtz, X. Hirtz, C. & P. Dodson, H. Zelenko & R. Zloch 7770* (MO), C. Luer illustr. 20430.
Morona-Santiago: forest between Limón and Cuenca, alt. 2800 m, 20 Jan. 1989, *A. Hirtz, A. Andreetta & S. Ortega 4180* (MO), C. Luer illustr. 20446; west of Macas toward Guamote, alt. 1900 m, 16 Jan. 1989, *C. Luer, J. Luer, A. Hirtz et al. 12940* (MO); between Cuenca and Plan de Milagro, alt. 3000 m, collected and cultivated, 7 Jan. 1995, by *A. Hirtz 6122* (MO).
Loja: at the pass north of Loja, alt. 3150 m, 17 Mar. 1984, *C. Luer, S. Dalström, T. Höijer & Kuijt 9546, 9547* (MO); above Yangana, north of pass, alt. 2400 m, 23 Mar. 1985, *C. Luer, J. Luer & A. Hirtz 10867* (MO).
Zamora-Chinchipe: east of the pass east of Loja, alt. 2750 m, 20 Feb. 1986, *C. Luer, J. Luer, A. Hirtz et al. 11973* (MO); south of Yangana, alt. 2450 m, 12 May 1981, *C. Luer, J. Luer & A. Hirtz 6188* (SEL); same area, alt. 2250 m, 11 May 1981, *C. Luer, J. Luer & A. Hirtz 6152* (SEL); Cordillera del Condor, swampy forest west of Paquisha, alt. 850 m, 19 Feb. 1986, *C. Luer, J. Luer, A. Hirtz, W. Flores & A. Embree 11922* (MO).

This species occurs abundantly in trees and on large, mossy stones in the area around Lago Zorogucho southwest of Cuenca (Fig, 291a.) where it was first collected by Colonel Hall, and it is widely distributed in southern Ecuador and undoubtedly adjacent Peru. It is variable in habit from shortly repent to caespitose, but always slender, with narrowly obovate or elliptical, petiolate leaves that are usually surpassed by subcongested, subflexuous racemes of small, yellow to purple flowers. The narrowly acute floral bracts are longer than the pedicels. The sepals are broad, obtuse, glabrous, and three-veined. The petals are transversely oblong with a thickly rounded margin and single-veined. Occasionally, a faint accessory vein is found at the base. The type-A lip is transversely oblong with a low, rounded callus on the upper surface, protruding anteriorly through the bar as a shallow glenion.

Stelis yanganensis Luer & Hirtz is often similar vegetatively and florally except for the petals that are three-veined with a strong transverse callus. The flowers of the minute *Stelis vesca* Luer & Hirtz are very similar.

375., 375a. Stelis hirtella (Garay) Luer, Phytologia 49(3): 229, 1981.

Bas.: *Apatostelis hirtella* Garay, Bot. Mus. Leafl. Harvard Univ. 27: 189, 1980, replaced name for *Stelis hirta* Lindl.

Ety.: From the diminutive of *hirtus*, "the little, hairy one," referring to the sepals.

Syn.: *Stelis hirta* Lindl., Folia Orchid. *Stelis* 3(11), 1858, not J.E.Sm.,

Plant small, epiphytic, caespitose; roots numerous, slender. Ramicauls erect, slender, 2-3.5 cm long, enclosed by 2-3 loose, tubular sheaths. **Leaf** erect, coriaceous, narrowly elliptical-obovate, subacute to acute, 2.5-5.5 cm long including a petiole 1-2.5 cm long, 0.5-0.8 cm wide, narrowly cuneate below into the petiole. **Inflorescence** a single, erect, sublax, distichous, several-flowered raceme with several flowers open simultaneously, 4-7.5 cm long including the peduncle 1.5-2 cm long, from an annulus below the apex of the ramicaul; floral bracts oblique, acute, 2 mm long; pedicels 1 mm long; ovary 1.5 mm long; **sepals** expanded, light green, glabrous externally, with a long, white pubescence within, broadly ovate, obtuse, connate less than 1 mm below the middle; the dorsal sepal 2.5 mm long, 2.5 mm wide, 3-veined, the lateral sepals 2.25 mm long, 2 mm wide, 3-veined; **petals** purple, transversely elliptical-oblong, with the apex transverse, with the ends rounded, shallowly concave below the narrowly thickened margin, 0.66 mm long, 1.33 mm wide; **lip** purple, thick, transversely oblong, 0.5 mm long, 1 mm wide, 0.5 mm deep, the apex broadly rounded, shallowly concave anteriorly with a shallow glenion over a rounded bar, the base deflexed, broadly truncate, hinged to the base of the column; **column** elongated, terete below the middle, 1 mm long, 0.75 mm wide, the anther and the stigma apical, the stigma narrowly transverse, the foot short.

ECUADOR: **Pichincha**: "Eastern Andes of Peru," near Papallada, *W. Jameson s.n.* (Holotype of *S. hirta* Lindl.: K); above Mindo, alt. 2200 m, 15 Oct. 1979, *A. Hirtz s.n.* (SEL); Tandayapa, alt. 1200 m, Sept. 1984, *A. Hirtz 1894* (MO).
Napo: Río Mulano, southeast of Cuyujúa, alt. 2360 m, 8 Apr. 1972, *B. MacBryde 1491* (AMES); between Papallacta and Baeza, alt. 2800 m, 5 June 1973, *L. Holm-Nielsen, S. Jeppesen, B. Løjtnant & B. Ølgaard 6887, 6896* (AAU, AMES); above Papallacta, alt. 2550 m, 15 May 1981, *C. Luer, J. Luer & A. Hirtz 6246* (SEL); above Baeza, alt. ca. 1500 m, cultivated by Ecuagenera, Gualaceo, 7 Mar. 2001, *C. Luer 19810* (MO).
Morona-Santiago: near Macas, collected by E. Sánchez and cultivated in Cuenca, 26 July 2004, *A. Hirtz 8866* (MO).

This species was first described by Lindley from a collection by Jameson near Papallacta on the eastern declivity of Pichincha where it is still to be found today. It is characterized by the small caespitose habit, with narrowly obovate, long-petiolate leaves as long as the ramicauls. Several small, green flowers with a long, delicate, white pubescence are produced simultaneously and successively in a distichous raceme that surpasses the leaf. The petals are purple, thin and transversely oblong. The lip is purple and transversely oblong, a short type-C, and the column is elongated.

376. **Stelis hylophila** Rchb.f., Bonplandia 3: 241, 1855.

Ety.: From the Greek *hylophilos*, "forest-loving," referring to the epiphytic habitat.

Syn.: *Stelis reflexa* Lindl., Folia Orchid. *Stelis* 3(16), 1858.
Ety.: From the Latin *reflexus*, "reflexed," referring to the recurved sepals.

Syn.: *Apatostelis hylophila* (Rchb.f.) Garay, Bot. Mus. Leafl. Harvard Univ. 27: 189, 1980.

Plant medium in size to large, epiphytic, caespitose to densely ascending, roots slender. Ramicauls erect, slender, 6-16 cm long, enclosed by a close, tubular sheath near the middle and 2-3 other sheaths about the base. **Leaf** erect, coriaceous, narrowly elliptical, subacute to obtuse, 5-12 cm long including a petiole ca. 1 cm long, the blade 1-2.5 cm wide, cuneate below into the petiole. **Inflorescence** 1-3, erect, distichous, simultaneously many-flowered racemes, 7-15 cm long including the peduncle 0.5-2.5 cm long, from a spathe 5-10 mm long at an annulus below the apex of the ramicaul; floral bracts oblique, acute, 1.5-2.5 mm long; pedicels 1-1.5 mm long; ovary 1-1.75 mm long; **sepals** expanded, recurved above the middle, yellow to orange, or rose, glabrous, ovate, obtuse, connate basally, the dorsal sepal 1-1.75 mm long, 1-1.5 mm wide, 3-veined (the lateral veins are often present only at the base), the lateral sepals 1-1.75 mm long, 1-1.5 mm wide, 3-veined at the base; **petals** yellow, thin, broadly cuneate to subcircular, with the apex concave, broadly rounded or truncate, and thickened medially externally, 0.75 mm long, 0.75-1 mm wide, 1-veined; **lip** yellow, thick, oblong, 0.6-0.8 mm long, 0.5-0.8 mm wide, 0.3-0.5 mm deep, concave above the middle with the apex obtuse, the bar entire, minutely short-pubescent toward the base, the base broadly truncate, hinged to the base of the column; **column** stout, terete, ca. 1 mm long and 0.5 mm wide, the anther and the stigma apical, the stigma oblong, transverse with stigmatic lobes inside wings of the column, the foot obsolescent.

ECUADOR: **Pichincha**: "Forests of the Andes at 8,000 ft.," *W. Jameson 687* (Holotype of *S. hylophylla*: W; Isotypes: BR, G, K, LE); Andes of Quito, alt. 9,000 ft., 21 Jan. 1856, *W. Jameson 21* (AMES); Andes of Quito, 21 Jan. 1856, *W. Jameson 512* (AMES, G); eastern Cordilllera on trees, at 1,200 ft., *W. Jameson s,n.* (K); western declivity of Pichincha, alt. 9,000 ft., *W. Jameson s.n.* (holotype of *S. reflexa*: K); subandine forest, *L. Mille 6* (BR); Pasachoa, alt. 3400 m, Feb. 1984, *A. Hirtz 1548* (MO).
Carchi: Nudo de Boliche, Voladero, alt. 3800 m, 12 June 1939, *W.C. Penland & R.H. Summers 905* (AMES).
Sucumbíos: Tulcán to El Carmelo, alt. 3000-3200 m, 23 Feb. 1978, *C. Luer, L. Luer & A. Hirtz 2755* (SEL); El Pun, near El Carmelo, alt. 3200 m, 26 Feb. 1974, *G. Harling & L. Andesson 12228* (GB).
Imbabura: Selva Alegre, alt. 2950 m, 1 May 1981, *C. Luer, J. Luer & A. Hirtz 6034* (SEL).
Napo: Río Mulano, near Cuyujúa, alt. 2360 m, 8 Apr. 1972, *B. MacBryde 1489* (AMES).
Morona-Santiago: Guarumales, alt. 1400-1800 m, 18 Apr. 2001, *A. Hirtz & X. Hirtz 7572* (MO).
Loja: army road to TV tower east of Yangana, alt. 2500 m, 22 Mar. 1985, *C. Luer, J. Luer, A. Hirtz & W. Flores 10806* (MO); above Yangana north of the pass, alt. 2400 m, 23 Mar. 1985, *C. Luer, J. Luer, A. Hirtz & W. Flores 10869* (MO).
Azuay: north of Sevilla de Oro, alt. 8,000 ft., 27 July 1945, *W.H. Camp E-4455* (AMES, NY); Lago Zorrogucho, alt 3000 m, 10 Jan. 1958. *C.H. Dodson 280* (MO, SEL); same area, alt. 3000 m, 2 Mar. 1977, *C. Luer, J. Luer & K. Cordoba 1531* (SEL); Parróquia Baños, Yanasacha, alt. 2925 m, 26 Dec. 1976, *J.D. Boeke 609* (QCA, SEL).
Zamora-Chinchipe: Cajanuma range south of Loja, alt. 2500 m, 21 Mar. 1985, *C. Luer, J. Luer, A. Hirtz & W. Flores 10745, 10765* (MO).
VENEZUELA: Boconó-Guaramacal road, alt. 7,000-9,000 ft., Aug. 1961, *G.C.K. Dunsterville 652.*
BOLIVIA: **Cochabamba**: Río Lupe Mendoza, alt. 2400-2600 m, 1 Feb. 1981, *C. Luer, J. Luer & R. Vásquez 5813* (SEL).

Both Lindley and Reichenbach described this species from collections by Jameson, Reichenbach's epithet *hylophila* antedating Lindley's epithet three years. This species and *Stelis polybotrya* Lindl. are the opposite extremes of a small group of closely related species that is widely distributed in the Andes from Venezuela into Bolivia at altitudes above 2500 meters above sea level. Among the members of the group, *Stelis hylophila*, the one with the longest but fewest number of racemes, was described first by Reichenbach. Lindley described two more of Jameson's collections as *S. reflexa*, the same species as Reichenbach's *S. hylophila*, and *S. polybotrya*, the one with the shortest but most racemes. All

degrees between the extremes can be seen in a large collection. The differences are often blurred, so identifications are often inaccurate, including some in the accompanying citations of the two concepts. Schlechter described an intermediate collection as *S. recurvula*, further blurring the boundaries for the more extreme species. Collections referrable to *S. recurvula* are attributed here to the more similar *S. polybotrya*, the only difference being longer racemes.

Typical *Stelis hylophila* is characterized by oblong, obtuse leaves borne by slender ramicauls of similar length, and one to three slender, many-flowered racemes of tiny flowers that exceed the leaf in length, typically twice the length of the leaf. The sepals of the minute sepals recurve above the middle, the petals are single-veined, and the lip is type-B.

Typical *Stelis polybotrya* is vegetatively similar, but three to eight or more racemes, typically less than half the length of the leaf, are borne in a fascicle. The sepals are not markedly recurved, but the petals and lip are the same. *Stelis recurvula* was distinguished by recemes about as long as the leaf, and sepals with margins slightly recurved.

A third, closely related species is *Stelis braccata* Rchb.f, which is distinguished by a smaller habit, very narrow leaves, and even smaller flowers. The flowers appear most similar to *S. polybotrya*.

377. Stelis hymenantha Schltr., Repert. Spec. Nov. Regni Veg. 10: 291, 1912.

Ety.: From the Greek *hymenanthos*, "a membranous flower," referring to the sepals.

Syn.: *Stelis cuspidilabia* Schltr., Repert. Spec. Nov. Regni Veg. Beih. 19: 17, 1923.
Ety.: From the Latin *cuspidilabius*, "with sharply pointed lip," referring to the labellum.

Syn.: *Stelis seleniglossa* Schltr., Repert. Spec. Nov. Regni Veg. Beih. 19: 97, 1923.
Ety.: From the Greek *seleniglossa*, "a lip like a moon," referring to the profile of the labellum.

Plant small, epiphytic, densely ascending-caespitose; roots slender. Ramicauls erect, slender, 1-3.5 cm long, enclosed by a tubular sheath, another below the middle and about the base. **Leaf** erect, coriaceous, narrowly obovate, subacute to obtuse, 1.5-7 cm long including an indistinct petiole 0.5-1 cm long, 0.25-1.1 cm wide, narrowly cuneate below into the subpetiolate base. **Inflorescence** an erect, dense, distichous, subsecund, several- to many-flowered raceme with several or many flowers open simultaneously, 2-8 cm long including the peduncle 0.5-1 cm long, with a few bracts, from below the apex of the ramicaul; floral bracts oblique, acute, 1.5-5 mm long; pedicels 0.5-1 mm long; ovary 0.5-1 mm long; **sepals** subexpanded, pale green, more or less suffused with purple, glabrous, connate basally, broadly ovate, subacute to obtuse, 1-1.5 mm long, 1-1.5 mm wide, 3-veined; **petals** green, oblong-obovate, 0.5-0.75 mm long, 0.3-0.5 mm wide, 1-veined, the apex broadly rounded with a thickened margin, concave, cellular-glandular externally; **lip** type-B, green, thick, subquadrate, obovoid, 0.5-0.8 mm long, 0.4-0.5 mm wide, 0.3 mm deep, the apex broadly obtuse with an acute, triangular apiculum, the disc with a broad callus filling the basal half, concave anteriorly, the base truncate, thickly pubescent, hinged to the base of the column; **column** stout, 0.5 mm long, 0.6 mm wide, the foot obsolescent, the anther and the stigma apical, the stigma bilobed.

Frequent and widely distributed in all Central American countries:
GUATEMALA: **Alta Verapaz**: near Cobán, alt. 1350 m, Sept. 1907, *H. von Türckheim II-1968* (Holotype of *S. hymenantha* destroyed at B; Lectotype here designated: AMES 55238, photo and illustr. of the type).
COSTA RICA: **Alajuela**: near La Palma, alt. 1400 m, Dec. 1908, *A. Brade & C. Brade 1207* (holotype of *S. seleniglossa* destroyed at B; lectotype here designated: AMES 30444, photo and illustr. of type); **Heredia**: near San Jeronimo, June 1921, *C. Wercklé 56* (holotype of *S. cuspidilabia* destroyed at B; lectotype here designated: AMES 30422, photo and illustr. of type).
COLOMBIA: **Antioquia**: La Unión, El Chuscal, west of La Unión, alt. 2650 m, 13 Sept. 1984, *C.H. Dodson, R. Escobar & E. Valencia 15288* (MO).
ECUADOR: **Esmeraldas**: Lita to San Lorenzo, alt. 700-800 m, 12 May 1990, *C.H. Dodson et al. 18262* (MO); trail west of Lita, alt. 300 m, 12 Jan. 1992, *C. Luer, J. Luer, A. Hirtz et al. 15570* (MO).
Tungurahua: Valle de Chaupe above Baños, alt. 2200 m, 24 July 1975, *C. Luer, G. Luer & S. Wilhelm 372* (MO, SEL).
Loja: San Pedro de Vilcabamba, alt. 2400 m, 23 Apr. 1986, *D. D'Alessandro 639* (MO).

This small species is frequent in its wide distribution from Mexico into western Ecuador. *Stelis hymenantha* has been misidentified as the Brazilian *Stelis aprica* Lindl. as have several other taxa. Although related, the latter is a larger plant distinguished by single-veined, rounded petals, and a more prominent, triangular apical lobe of the lip.

Stelis hymenantha is characterized by a small, more or less ascending, densely caespitose habit. A slender raceme approaches or barely surpasses the narrow leaf that is borne by a shorter ramicaul. The floral bracts enclose the pedicel, and sometimes part of the ovary. The minute sepals are ovate with the laterals not widely spread, often simulating a synsepal of bilabiate species. The petals are single-veined, oblong, usually longer than wide, and concave at the thickened apex. The type-B lip is variably obovoid-subquadrate with an acute, triangular apiculum abruptly projecting from the broad apex.

378., 378a. Stelis jamesonii Lindl., J. Bot. 1: 11, 1834.

Ety.: Named in honor of Dr. William Jameson of Quito, Ecuador, who collected this species as well as many others.

Plant medium in size, epiphytic, caespitose, ascending, to scandent; roots slender. Ramicauls erect, slender, often fasciculate, frequently prolific, 2-7 cm long, enclosed by 2-3 loose, tubular sheaths. **Leaf** erect, coriaceous, narrowly elliptical, subacute to obtuse, petiolate, 2.5-8 cm long including a petiole 1-2.5 cm long, 0.6-1.5 cm wide, gradually narrowed below into the petiole. **Inflorescence** an erect, sublax, flexuous, conspicuously long-pedicellate, many-flowered raceme with several flowers open simultaneously, 5-22 cm long including the peduncle 3-8 cm long, from an annulus below the apex of the ramicaul; floral bracts oblique, acute, 2.5-3.5 mm long; pedicels 7 mm long below to 3 mm long near the apex; ovary 1.5-2 mm long; **sepals** light yellow, green or purple, flecked, mottled, dotted, and veined with brown or purple, glabrous, broadly ovate, obtuse, slightly convex, connate basally, the dorsal sepal 3-3.5 mm long, 3.25-3.5 mm wide, 3-veined, the lateral sepals 3 mm long, 3-3.5 mm wide, 3-veined; **petals** yellow, green to purple, transversely obovate, shallowly concave, 1.5 mm long, 1.5 mm wide, 3-veined, the apex broadly obtuse with the margin thickened; **lip** yellow, green to purple, oblong-obovate, discoid, 0.4-0.5 mm long, 1.5 mm wide, 2 mm deep, shallow concave at the broadly rounded apex, the disc with a low, oblong callus extending forward from a densely short-pubescent callus at the base, the base truncate, hinged to the base of the column; **column** stout, 1 mm long, 1.5 mm wide, with an obsolescent foot, the anther and the bilobed stigma apical.

Selected representative collections:
ECUADOR: **Azuay**: "Cuenca," *W. Jameson s.n.* (Holotype of *S. jamesonii*: K); Zurucucho, near Cuenca, *W. Jameson 67* (K); Rio Matadero west of Cuenca, alt. 9,000 ft., 3 Mar. 1945, *W.H. Camp E-1900* (GB, NY); between Quenca and Girón, alt. 2700 m, 5 Apr. 1974, *G. Harling & L. Anderssson 13203* (AMES, GB); Lago Zorrogucho, alt. 3000 m, 7 May 1981, *C. Luer & J. Luer 6112* (SEL).
Carchi: between Tulcán and El Carmelo, alt. 3200 m, 6-7 Apr. 1985, *C. Luer, J. Luer, A. Hirtz & W. Flores 11124* (MO).
Morona-Santiago: Guarumales, alt. 1400-1800 m, 18 Apr. 2001, *A. Hirtz, X. Hirtz, H. Zelenko & R. Zloch 7577* (MO).
Bolívar: trees along old road between Guaranda and Caluma, alt. 1600 m, 10 Mar. 1982, *C. Luer & S. Dalström 7241, 7265* (SEL); forest between Guaranda and Facundo Velo, alt. 2600 m, 24 Mar. 1984, *C. Luer, S. Dalström, T. Höijer, J. Kuijt & A. Hirtz 9681* (MO).
Cañar: above Rivera on road to Pindilig, alt. 2800 m, 9 Mar. 1985, *G. Harling & L. Andersson 23026* (GB).
El Oro: west of Piñas, alt. 900 m, 8 Oct. 1979, *C.H. Dodson, A. Gentry & G. Shupp 8994* (SEL).
Loja: between Utuana and Colaisaca, alt. 2700 m, 13 Nov. 1982, *G. Harling et al., 20694, 20707* (AMES, GB); above Jimbura, alt. 3000 m, 21 Mar. 1984, *C. Luer, S. Dalström, T. Höijer & J. Kuijt 9667* (MO); northeast of Tambillo toward Manú, alt. 2700 m, 21 Feb. 1988. *U. Molau & B. Eriksen 3145* (GB); south of Yangana, north of the pass, alt. 2400 m, 3 Mar. 1982, *C. Luer, A. Andreetta, D. D'Alessandro & S. Dalström 7085* (SEL); wooded valley near El Cisne, alt. 2350 m, 26 Feb. 1986, *C. Luer, J. Luer & A. Embree 12039* (MO).
COLOMBIA: **Valle de Cauca**: Páramo de Bavaya, Corrales, alt. 3500 m, 10 Apr. 1946, *J. Cuatrecases 20575* (AMES, COL).
VENEZUELA: **Táchira**: Páramo de Tamá, alt. ca. 1400 m, May 1967, *G.C.K. Dunsterville 1000.*

This species is often confused with *Stelis ascendens* Lindl. Their distributions are similar and overlapping from westernmost Venezuela to southernmost Ecuador. It is misidentified as *S. lentiginosa* Lindl. in *Venezuelan Orchids Illustrated.* The flowers of *S. ascendens* and *S. jamesonii* among Elmer Smiths's illustrations (Garay, 1980) appear to represent the same species: *S. ascendens.*

Stelis jamesonii is distinguished from *S. ascendens* by a caespitose, fasciculate, non-repent, but frequently prolific habit. The raceme is long-pedicellate, with the pedicels projecting conspicuously beyond the floral bracts. The broadly ovate sepals are glabrous; the petals are similar; and the very short lip is a thinner discoid that is deeper than wide,

379. **Stelis kentii** Luer, sp. nov.

Ety.: Named for Rick Kent, co-collector of the plant.

Planta mediocris, racemo laxe plurifloro folio elliptico acuto multilongiore, sepalis subcircular glabris, petalis latissime ovatis concavis trinervis, labello suborbicular antice concavo margine tenui apiculato distinguitur.

Plant medium in size, epiphytic, roots unknown. Ramicauls erect, slender, ca. 2 cm long, long, enclosed by a loose, tubular sheath from near the base. **Leaf** erect, coriaceous, elliptical, acute, 6 cm long including an indistinct petiole 0.5 cm long, 1.5 cm wide, cuneate below into the subpetiolate base. **Inflorescence** an erect, lax, nearly simultaneously several-flowered raceme, 12-15 cm long including the peduncle 5-6 cm long, subtended by a minute spathe within the cauline sheath; floral bracts infundibular, oblique, acute, 3-4 mm long; pedicels 1.5 mm long; ovary 2 mm long; **sepals** glabrous, color unknown, subcircular, obtuse, the dorsal sepal 2 mm long, 2 mm wide, 3-veined, connate below the middle to the lateral sepals, the lateral sepals similar to the dorsal sepal, 1.75 mm long, 2 mm wide, 3-veined; **petals** thin, transversely ovate, concave, with the margin broadly rounded and narrowly thickened, without a transverse callus, 0.75 mm long, 1.25 mm wide, faintly 3-veined; **lip** type-C, suborbicular, concave anteriorly with a thin margin, with a small sharp, central apiculum, 1 mm long, 1 mm wide, 0.5 mm deep, the bar broadly rounded, with a central callus, bifid toward the apex, pubescent dorsally toward the base, with an additional, small, lamellate callus to either side, the base hinged to the base of the column; **column** stout, 1 mm long and wide, the anther and bilobed anther apical, the foot obsolescent.

ECUADOR: **Tungurahua**: below Baños, ca. 1500 m, collected February 1975, flowered in cultivation at SEL. July 1975, *C. Luer & R. Kent s.n.* (Holotype of *S. kentii*: SEL), C. Luer illustr. 21315.

This species is known only from a meager specimen cut from a cultivated plant from the lower eastern slope of the Andes of central Ecuador. The ramicaul appears to have been cut off near or at the base of a short ramicaul. The only leaf is elliptical and acute, and about three times longer than the ramicaul. Two racemes were preserved, one still attached to the ramicaul. The racemes are loosely flowered with relatively large floral bracts, and with a peduncle as long as the leaf, The sepals are round and glabrous; the petals are thin, transverse, concave and faintly three-veined. The rounded lip is a modification of type-C with an acute apiculum.

380., 380a., 380b. **Stelis lamellata** Lindl., in Hook., Ic. Pl. t. 62, 1836, and Companion Bot. Mag. 2: 353, 1836.

Ety.: From the Latin *lamellatus*, "lamellate," referring to the plate-like calli of the lip.

Syn.: *Stelis millei* Schltr., Repert. Spec. Nov. Regni Veg. 14: 122, 1915.
Ety.: Named in honor of Father Louis Mille who collected this species.

Syn.: *Stelis altigena* Schltr., Repert. Spec. Nov. Regni Veg. Beih. 8: 51, 1921.
Ety.: From the Latin *altigenus*, "of high origin," referring to the habit.

Syn.: *Stelis arevaloi* Schltr., Repert. Spec. Nov. Regni Veg. Beih. 27: 25, 1924.
Ety.: Named for Santiago Arevalo, a collector for Hopp.

Syn.: *Stelis calyculata* Garay, Bot. Mus. Leafl. Harvard Univ. 27: 183, published 1980.
Ety.: From the Latin *calyculatus*, "calyculate," probably referring to the sepaline tube.

Plant small to large, epiphytic, ascending-caespitose; roots slender. Ramicauls erect, fasciculate, slender, 3-7 cm long, enclosed by 3-4 tubular, ribbed sheaths. **Leaf** erect, coriaceous, narrowly elliptical, acute to subacute, 3-7 cm long including a petiole 1-3 cm long, 0.8-1.5 cm wide, gradually narrowed below into the petiole. **Inflorescence** an erect, congested, secund, many-flowered, raceme with many flowers open simultaneously, 10-22 cm long including the peduncle 3-5 cm long, from an annulus below the apex of the ramicaul; floral bracts oblique, acute, 2.5 mm long; pedicels 1-1.5 mm long; ovary 1-2 mm long; **sepals** white to light yellow, glabrous externally, cellular-glandular within, with margins above the middle revolute, the dorsal sepal obovate, acute, 5.5 mm long, 2.5 mm wide, 3-veined, connate to the lateral sepals for 2 mm to form a short tube, the lateral sepals ovate, obtuse, 5.5 mm long, 2 mm wide, 3-veined, connate 1 mm; **petals** white or light yellow, transversely cuneate, shallowly concave, 0.75 mm long, 1.2 mm wide, 1-veined, the apex truncate, conspicuously thickened externally; **lip** white or light yellow, oblong-subquadrate, more or less inflated below the middle, hollow, 1 mm long, 0.6 mm wide, 0.6 mm deep, the apex acute to subacute, transversely thickened with a cleft across the middle over the opening into the cavity, with a low, rounded callus on the dorsum above the base, the base truncate, hinged to the base of the column; **column** stout, 0.6 mm long, 0.6 mm wide, the foot obsolescent, the anther and the bilobed stigma apical.

ECUADOR: **Pichincha**: ravines of Pichincha, declivity of Guagua near Quito, alt. 10,000-11,000 ft., (R.82), *W. Jameson s.n.* (Holotype of *S. lamellata*: K; Isotype: W); valley of Lloa, *W. Jameson 321* (G, K, LE): terrestrial, lithophytic and epiphytic in interandean forest, *L. Mille 1* (holotype of *S. millei*: QPLS; lectotype: BR); Mt. Pichincha, vicinity of Guagua, alt. 10,000-11,000 ft., *T. Hartweg 1412* (BM, BR, G, K, LD, LE, W); on Pichincha, alt. 12,000 ft., *Col. Hall 25* (K); "Quito," alt. 6,000 ft., *Karsten s.n.* (W); Andes of Quito, Valley of Lloa, 1855, *J.P. Couthouy s.n.* (AMES); Valley of Lloa, *W. Jameson 321* (BM, BR, W); Lloa, *Hall s.n.*: W; Lloa, 21 Jan 1856, *W. Jameson 500* (AMES, G); ravines of Pichincha, 10,000-11,000 ft., *W. Jameson s.n.* (W); Valley of Lloa near Guayan, July 1863, *W. Jameson s.n.* (W); between Quito and Santo Domingo, alt 2000 m, 5 Feb. 1963, *C.H. Dodson & L.B. Thien 2236* (SEL); vicinity of Quito, *Asplund 20358* (AMES, S); between Cotocollao and Nono, alt. 3200-3300 m, 29 Jan. 1974, *G. Harling & L. Andersson 11670* (AMES, GB); west of San Juan, alt. 3100 m, 27 Jan. 1982, *G. Harling et al. 19936* (AMES, GB).
Imbabura: Hda. Yura Cruz, north of Ibarra, alt. 3700 m, 25 May 1973, *L. Holm-Nielsen, S. Jeppesen, B. Løjtnant & B. Ølgaard 6484* (AAU, AMES, SEL); páramo west of Otavalo, alt. 3000 m, 17 Feb. 1978, *C. Luer, J. Luer & A. Hirtz 2613* (SEL); between Otavalo and Apuela, alt. 2500 m, 8 Feb. 1979, *C. Luer, J. Luer, A. Hirtz & R. Escobar 3912* (SEL); Mt. Mojanda between Otavalo and Selva Alegre, alt. 3100 m, 31 July 1985, *C.H. Dodson & A. Embree 16125* (MO); between Otavalo and Ibarra, alt. 3200 m, 20 Mar. 1986, *C.H. Dodson, A. & X. Hirtz 16394A* (AMES, MO); above Mariano Acosta, alt. 3300 m, 1 May 2001, *A. Hirtz & X. Hirtz 7742* (MO).
Cotopaxi: between Latacunga and Quevedo, alt. 3000 m, 1975, *C. Luer & R. Kent 292* (SEL).
Napo: east of Papallacta, alt. 2600 m, 26 Mar. 1972, *B. MacBryde & J.D. Dwyer 1251* (AMES).
Bolívar: Hda. Talahua, alt. 2600 m, 2 May 1939, *C.W. Penland & R.H. Summers 612* (holotype of *S. calyculata*: AMES; isotype: K); between Guaranda and Facundo Vela, alt. 3100 m, 24 Mar. 1984, *C. Luer 9672, 9684* (MO); between Salinas and La Palma, alt. 3400 m, 10 Mar. 1991, *C. Luer. J. Luer, A. Hirtz et al. 14948* (MO).
Chimborazo: subandine region near Pifo, *A. Mille s.n.* (holotype of *S. altigena* destroyed at B), neotype here designated *C. Luer 9672* (MO).
Morona-Santiago: Limon, flowered in cultivation by Ecuagenera, Gualaceo, 19 Apr. 2001, *A. Hirtz 7704* (MO).
Zamora-Chinchipe: east of Loja, alt. 2645-2685 m, *B. MacBryde 295* (AMES).
COLOMBIA: **Cauca**, northwest of Pasto, near Daza, alt. 2800 m, Jan. 1922, *W. Hopp 145* (holotype of *S. arevaloi* destroyed at B, neotype here designated, *C. Luer, J. Luer, A. & P. Jesup 13844* (MO).

This variable species is found in southern Colombia and on both slopes of the Andes of Ecuador where it is frequent. Vegetatively, it is characterized by an ascending habit with fasciculated ramicauls. Small portions of the plant often appear caespitose. The secund inflorescence is about twice the length of the narrowly elliptical leaves. The flowers are distinguished by the connation of the sepals below the middle into a distinct, sepaline tube with the free portions directed forward, often with revolute margins. When the free portions are more or less expanded, the flower appears distinct, especially when the raceme is not strictly secund. The central apparatus within the tube is not readily visible. The petals are cuneate, truncate and single-veined with a marked thickening externally at the apex.

381. **Stelis lanata** Lindl., Folia Orchid. *Stelis* 13(100), 1858.

From the Latin *lanatus*, "wooly," referring to the densely pubescent sepals.

Plant medium in size, epiphytic, ascending, repent, the rhizome thick, ca. 1 cm long between ramicauls; roots slender. Ramicauls ascending, erect, slender, 3-9 cm long, enclosed by a close, tubular sheath on the middle third, and another 1-2 sheaths at the base. **Leaf** erect, coriaceous, elliptical, subacute to acute, petiolate, 6-11 cm long including the petiole 1-2 cm long, the blade 1-2 cm wide, narrowly cuneate below into the petiole. **Inflorescence** 1-3 erect, subdense, subflexuous, many-flowered racemes, with several to many flowers open simultaneously, 8-15 cm long including the peduncle 2-4 cm long, from a spathe ca. 0.5 cm long below the apex of the ramicaul; floral bracts oblique, acute, 4 mm long below to 3 mm long above; pedicels 1-1.5 mm long; ovary 1 mm long; **sepals** yellow or purple, glabrous externally, with a long, dense, white pubescence within, ovate, obtuse, concave, connivent, connate basally, the dorsal sepal 2.3 mm long, 2 mm wide, 3-veined, the lateral sepals 2 mm long, 1.6 mm wide; **petals** transversely ovate, concave, the apex rounded and thickened on the margin, 1 mm long, 1.3 mm wide, 3-veined; **lip** thickly subquadrate, 1 mm long, 1 mm wide, 0.8 mm deep, concave anteriorly, with the apex broadly obtuse, the bar shallowly cleft into the cavity, the dorsum with a low, obscure callus, the base truncate, hinged to the base of the column; **column** stout, 1 mm long, 1.2 mm wide, the foot obsolescent, the anther and bilobed stigma apical.

ECUADOR: **Pichincha**: west slope of the Andes of Quito, *W. Jameson s.n.* (Holotype of *S. lanata*: K); eastern ridge of the Cordillera, alt. 12,000 ft., *W. Jameson s.n.* (K).
Cotopoxi: west of El Corazón, alt. 1200 m, 19 Feb. 1979, *C. Luer, J. Luer & A. Hirtz 4011* (SEL).
Tungurahua: alt. 8,000 ft., May 1858, *Spruce 5384* (K, W).
Morona-Santiago: between Sigsig and Chiguinda, alt. 3000 m, 11 Aug. 1990, *A. Hirtz 5049* (MO), C. Luer illustr. 20499; terrestrial on road embankment east of Paute above Campimenti Guarumales, alt. 1830, 23 Mar. 1991, *C. Luer, J. Luer & A. Andreetta 15224* (MO). Collection data lost, collected in 2007*A. Hirtz 9202* (MO).

Although widely distributed in central Ecuador, this unpretentious species is uncommon. The ramicauls arise from a stout, ascending rhizome, and the racemes equal and surpass the elliptical leaves. The obtuse, concave, connivent sepals are densely long-pubescent within; the petals are not remarkable; and the lip is concave with a cleft bar and a broadly triangular apex.

382. **Stelis lancea** Lindl., Folia Orchid. *Stelis* 3(14), 1858.

Ety.: From the Latin *lancea*, "a spear," in allusion to the shape of the leaf.

Plant medium in size, epiphytic, scandent, ascending-repent, the rhizome stout, erect, 1-2 cm long between ramicauls; roots slender. Ramicauls erect, slender, 5-9 cm long, enclosed by a tubular sheath below the middle and another sheath at the base. **Leaf** erect, coriaceous, narrowly ovate, acute, petiolate, 6-10 cm long including a petiole 1.5-2 cm long, 1.2-1.5 cm wide, cuneate below into the slender petiole. **Inflorescence** 1-2 erect, distichous, many-flowered racemes with several flowers open simultaneously, 10-14 cm long including the peduncle 2-3 cm long, subtended by a spathe 7-8 mm long, below the apex of the ramicaul; floral bracts oblique, acute, 1.5 mm long; pedicels 1 mm long; ovary 1 mm long; flowers light yellow or red; **sepals** glabrous externally, microscopically pubescent within, broadly ovate, obtuse, connate basally, the dorsal sepal 2.5 mm long, 2 mm wide, 3-veined, the lateral sepals 2 mm long, 2 mm wide, 3-veined; **petals** transversely ovate, shallowly concave, with a transverse callus, 0.8 mm long, 1.2 mm wide, 3-veined, the apex broadly obtuse with the margin thickened, cellular; **lip** subquadrate, 0.5 mm long, 0.8 mm wide, 0.5 mm deep, concave anteriorly with the apical margin slightly thickened and rounded, the bar with a shallow glenion, the dorsum with a rounded callus, the base truncate, hinged to the base of the column; **column** stout, 1 mm long, 1 mm wide, with a rudimentary foot, the anther and the bilobed stigma apical.

ECUADOR: **Pichincha**: western declivity of the Andes, mountains of Pulzhum, alt. 11,000 ft., Aug. 1857, (R.73), *W. Jameson s.n.* (Holotype of *S. lancea*: K); "Quito," 1848, *W. Jameson s.n.* (K, W); Pululahua valley, alt. ca. 2500 m, 15 Feb. 1978, *C. Luer, J. Luer & A. Hirtz 2574* (SEL); between Nono and Tandayapa, alt. 2580 m, 14 May 1981, *C.H. Dodson et al. 10740* (SEL).
Imbabura: Selva Alegre, alt. 2950 m, 1 May 1981, *C. Luer, J. Luer & A. Hirtz 6035* (SEL).

This long-scandent species is apparently uncommon in the northern provinces of Ecuador. The leaves are elliptical-ovate, acute and long petiolate; the multi-flowered raceme of small flowers exceeds the leaf; the sepals are ovate and obtuse; and the petals are transverse with a thickened margin and a transverse callus. The typical type-A lip is concave anteriorly with a rounded apex, a shallow but relatively large glenion, and a round callus on the dorsum.

383. **Stelis lanceolata** (Ruiz & Pav.) Willd., Sp. Pl. 4: 139, 1805.

Bas.: *Humboldtia lanceolata* Ruiz & Pav., Syst. Veg. Fl. Peruv. et Chil. 237, 1798.
Ety.: From the Latin *lanceolatus*, "lanceolate," referring to the leaves.

Syn.: *Stelis macrocarpa* Kunth, Nov. Gen. Sp. 1: 363, 1836.
Ety.: From the Greek *macrocarpos*, "large fruit," referring to the capsules.

Syn.: *Stelis sesquipedalis* Lindl., Orchid. Lind. 3, 1846.
Ety.: From the Latin *sesquipedalis*, "a foot and a half," alluding to the height of the plant.

Syn.: *Stelis rhynchanthera* F.Lehm. & Kraenzl., Bot. Jahrb. Syst. 26: 447, 1899.
Ety.: From the Greek *rhynchanthera*, "beaked anther," referring to the shape of the anther-cap.

Plant large, epiphytic to terrestrial, scandent, ascending-repent, the rhizome erect, 3-5 cm long between ramicauls; roots slender. Ramicauls erect, slender, 5-7 cm long, enclosed by a tubular sheath below the middle and another sheath at the base. **Leaf** erect, coriaceous, narrowly elliptical, subacute to obtuse, petiolate, 6-9.5 cm long including a petiole 1-1.5 cm long, 1.5-2 cm wide, gradually narrowed below into the petiole. **Inflorescence** an erect, sublax, distichous, many-flowered raceme with several flowers open simultaneously, 15-22 cm long including the peduncle 3-5 cm long, subtended by a spathe 1.5 cm long, below the apex of the ramicaul; floral bracts oblique, acute, 3 mm long; pedicels 1.5 mm long; ovary 1.5 mm long; **sepals** light yellow, glabrous externally, microscopically to shortly pubescent within, broadly ovate, obtuse, slightly convex, connate basally, the dorsal sepal 4.5 mm long, 3.5 mm wide, 3-veined, the lateral sepals 3 mm long, 3.25 mm wide, 3-veined; **petals** yellow, transversely ovate, shallowly concave, 1.5 mm long, 2 mm wide, 3-veined, the apex broadly obtuse with the margin thickened, cellular-papillose; **lip** yellow, oblong-subquadrate, 1.25 mm long, 1.75 mm wide, 1 mm deep, concave anteriorly with the apex rounded, the disc thickly callous, more or less rounded, cellular-papillose with an apical glenion, the base truncate, hinged to the base of the column; **column** stout, 1.5 mm long, 2 mm wide, with a rudimentary foot, the anther elongated and the stigma bilobed.

PERU: **Huánuco**: mountains of Muña and Pillao near Chachahuassi, *Pavón s.n.* (Holotype of *S. lanceolata*: MA).
ECUADOR: **Carchi**: above San Gabriel, alt 3340 m, 16 May 1981, *C. Luer, J. Luer & A. Hirtz 6251* (SEL); between Tulcán and El Carmelo, alt. 3200 , 6-7 Apr. 1985, *C. Luer, J. Luer & A. Hirtz 11078, 11122* (MO); El Playón, alt. 3100 m, Feb. 1995, *A. Hirtz 6211* (MO). **Pichincha**:
COLOMBIA: **Nariño**: mountains of Pasto, between village of Yenoi, forest La Trocha and villa Tiendala, alt. 1360 hex., Dec. 1801, *A. Humboldt & A. Bonpland s.n.* (holotype of *S. macrocarpa*: P). **Cauca**: *F.C. Lehmann 6817* (holotype of *S. rhynchanthera* Lehm. & Kraenzl, destroyed at B, neotype here designated *C. Luer, J. Luer & A. Hirtz 11122* (MO).
VENEZUELA: **Mérida**: Sierra Nevada, alt. 9,000 ft., Aug. 1842, *J. Linden 632* (holotype of *S. sesquipedalis*: K; isotype: BM, G); Páramo La Negra, alt. 10,000 ft., June 1962, *G.C.K. Dunsterville 709*.

This species is found through much of the Andes at an altitude over 2500 meters above sea level. It was first collected and described from Peru by Ruiz and Pavón in *Humboldtia*; it was collected in Colombia by Humboldt and Bonpland; it was collected in Venezuela by Linden; and it was collected in Ecuador by Lehmann. The habit is erectly long-repent with elliptical leaves and a twice longer raceme. This repent habit, however, is obscure in the Ruiz collection, and lost in the type of *Stelis sesquipedalis* Lindl., because the ramicauls have been broken away from the lower portions. The petals and lip are proportionately large for the ovate sepals. The petals are transverse and shallowly concave. The lip, an unusual variant of type-A, is transverse and thick with a prominent, rounded, callous disc overlain by a prominent, elongated rostellum with overlying anther-cap.

384. **Stelis lentiginosa** Lindl., Folia Orchid. *Stelis* 8(58), 1858.

Ety.: From the Latin *lentiginosus*, "with minute dots," referring to red dots seen on the floral bracts.

Plant small, epiphytic, caespitose; roots slender. Ramicauls erect, slender, 15-18 mm long, enclosed by 2-3 tubular sheaths. **Leaf** erect, coriaceous, elliptical, acute to subacute, 20-35 mm long including a petiole 7-10 mm long, 5-6 mm wide dry, cuneate below into the petiole. **Inflorescence** an erect, subdensely successively several-flowered raceme, 5-6 cm long including the peduncle ca. 3 cm

long, with a spathe 5 mm long, from an annulus below the apex of the ramicaul; floral bracts infundibular, acuminate, oblique, 3 mm long; pedicels 1 mm long; ovary 1 mm long; **sepals** (color unknown) broadly ovate, obtuse, glabrous, connate basally, the dorsal sepal 2.5 mm long, 2.5 mm wide, 3-veined, the lateral sepals widely spread, 2.5 mm long, 2.5 mm wide, 3-veined; **petals** broadly obovate-oblong, thin, shallowly concave, 0.6 mm long, 1 mm wide, 1-veined, the apex broadly rounded, narrowly thickened on the margin; **lip** pyriform, 0.3 mm long, 1.3 mm wide, 1.6 mm deep (thinly subdiscoid), the apex broadly rounded, shallowly concave above the middle, the base filled with a minutely pubescent callus that extends forward into the cavity as a glenion, the base hinged to the base of the column; **column** stout, 1 mm long and wide, the foot obsolescent, the anther and the bilobed stigma apical.

Pichincha: descent of the Eastern Cordillera, on trunks and branches of *Escallonia*, at 12,000 ft., *W. Jameson 18* (Holotype of *S. lentiginosa*: K), C. Luer illustr. 19938.

This is one of the very few species described by Lindley from Jameson's collections that has not yet been rediscovered. It is known to me only from Jameson's collection, but it may lie unidentified among the many "indets" filed away in scattered herbaria. The accompanying description and illustration have been made from the type-specimen at Kew. Dunsterville's drawing in *Venezuelan Orchids Illustrated* identified as *Stelis lentiginosa* is a caespitose variation *S. ascendens* Lindl.

As represented at K by Lindley's type, *Stelis lentiginosa* is a small plant less than five centimeters tall, and the raceme exceeds the narrow leaf. Material is too scanty to determine if it is prolific. The sepals are glabrous and broadly ovate; the petals are single-veined; and the lip, a discoid variation of type-B, is shallowly concave and pyriform in outline with the apex broadly rounded. The "length" of the lip is what appears to be the thickness; the depth is the distance from the base to the tip.

385., 385a., 385b. Stelis lindenii Lindl., Orchid. Lind. 3, 1846.

Ety.: Named in honor of Jean Linden who collected this species.

Syn.: *Stelis grandis* Rchb.f., Bonplandia 3: 70, 1855.
Ety.: From the Latin *grandis*, "large," referring to the size of the plant.

Syn.: *Stelis ochreata* Lindl., Folia Orchid. *Stelis* 2(8), 1858.
Ety.: From the Latin *ochreatus*, "ochre-yellow," referring to the color of the flowers.

Plant medium to large, epiphytic, shortly repent, the rhizomes stout, 0.5-3 cm long between ramicauls; roots slender. Ramicauls ascending erect, stout to relatively slender 15-35 cm long, with a tubular sheath above the middle and another 2 sheaths at the base. **Leaf** erect, coriaceous, elliptical-ovate, subacute, petiolate, 10-17 cm long including the petiole 1-2 cm long, 3-6 cm wide, cuneate below into the petiole. **Inflorescence** 1-4 erect, strict, distichous, many-flowered racemes with several to many flowers open simultaneously, congested above, loosely flowered below, 10-25 cm long including the peduncle 3-8 cm long, with a spathe 1-1.5 cm long, at an annulus below the apex of the ramicaul; floral bracts oblique, acute, 3-5 mm long; pedicels 3-4 mm long; ovary 2.5 mm long; **sepals** similar, fleshy, sensitive, glabrous externally, cellular-glandular within, yellow, green to purple, transversely ovate, broadly obtuse, connate to near the middle, the dorsal sepal 2.75-4.5 mm long, 3-5 mm wide, 5-veined, the lateral sepals 2.5-4 mm long, 3-4.5 mm wide, 5-veined; **petals** green or purple, transversely ovate, obtuse, shallowly concave, 1 mm long, 1.6 mm wide, 3-veined, with the margin broadly thickened; **lip** green or purple, obliquely subquadrate, 1 mm long, 1.4 mm wide, 1 mm deep, the anterior surface shallowly concave with the apex broadly rounded, the bar with a small glenion, the dorsum with a rounded, microscopically pubescent callus, the base truncate, hinged to the base of the column; **column** stout, 1 mm long, 1.5 mm wide, the foot obsolescent, the anther and the bilobed stigma apical.

VENEZUELA: **Mérida**: forests of Valle, near Mérida, alt. 6,000 ft., Aug. 1842, *J. Linden 679* (Holotype of *S. lindenii*: K), C. Luer illustr. 19230; forests of Valle, near Mérida, alt. 6,000 ft., Sept., 1846, *L. Schlim 1019* (holotype of *S. grandis*: W; isotypes G, K, LD, LE).
Trujillo: between Trujillo and Boconó, alt. 2300-2400 m, 3-4 Sept. 1966, *J.A. Steyermark & M. Rabe 97246* (MES, VEN). **Lara**: between Cobiro and La Escalera, alt. 1500 m, 10 Aug. 1970, *J.A. Steyermark & G.C.K. & E. Dunsterville 103684* (AMES, VEN).

Representative collections from Ecuador:
ECUADOR: **Carchi**: trail from Maldonado to Tobar Donoso, alt. 1500 m, 27 Feb. 1974, *G. Harling & L. Andersson 12253* (GB); between Tulcán and Maldonado, alt. 1950 m, 2-4 Apr. 1984, *C. Luer, S. Dalström & T. Höijer 9904, 9906* (MO).
Imbabura: between Carolina and Buenos Aeres, alt. 1950 m, 17 Jan. 1987, *C, Luer, J. Luer et al. 12349* (K, MO).
Pichincha: new road between Quito and Santo Domingo, alt. 1950 m, 31 Mar. 1984, *C. Luer, S. Dalström, T. Höijer, J. Kuijt & A. Hirtz 9833* (MO); same area, alt. 2000 m, 1 Mar. 1986, *C. Luer, C. Dodson, A. Hirtz & A. Embree 12070* (MO); farm road south of Tandapi, alt. 1450 m, 1 Mar. 1986, *C. Luer, C. Dodson, A. Hirtz & A. Embree 12054, 12055* (K, MO); between Chiriboga and Santo Domingo, alt. 1500 m, 20 May 1988, *C. Luer & A. Hirtz 13714* (K, MO).
Pastaza: collected Sept. 1980, cultivated at SEL, 1981, *C. Luer 5986* (SEL).
Morona-Santiago: between Limón and La Unión, alt. 1400-1500 m, 22 Apr. 1985, *G. Harling & L. Andersson 24420* (GB, QCA); Chiviaza, east of Limón, alt. 1300 m, 21 Oct. 1999, *A. Hirtz, E. Sánchez & S. Marin 7032* (MO).
Azuay: northeast of Osomache in Río Paute valley, alt. 2400 m, 3 Feb. 1988, *U. Molau, B. Eriksen, M. Fredrikson 2895* (AAU, GB); Cordillera del Molleturo, above Río Shumiral, alt. 650 m, 27 Jan. 1992, *A. Luer, J. Luer, A. Hirtz, A. & P. Jesup 16175* (MO).
El Oro: forest above Zaruma, alt. 1800 m, 23 Feb. 1986, *C. Luer, J. Luer, A. Hirtz, W. Flores & A. Embree 12025* (MO).

This species is widely distributed in the Andes from western Venezuela into southern Ecuador. It is characterized by a large, shortly repent habit with elliptical-ovate, petiolate leaves. Some populations are considerably smaller with slender ramicauls and some racemes are shorter than the leaf. The floral bracts of the congested racemes usually hug the rachis, while those of the similar *Stelis glumacea* Lindl. protrude. The broadly ovate, obtuse, five-veined sepals are thick, fleshy and sensitive, closing when disturbed, but never widely expanding. The flowers are arranged in opposite ranks, with the flowers often overlapping above. The petals are broadly ovate with the margin thick. The lip is type-A, concave anteriorly with a rounded margin.

386. **Stelis loxensis** Lindl., Pl. Hartw. 149, 1844.

Ety.: Named for the province of Loja in southern Ecuador, where the species was found.

Plant medium in size, epiphytic, shortly ascending to densely caespitose, roots slender. Ramicauls ascending-erect, fasciculate, stout, 2-3.5 cm long, enclosed by 2 loose, tubular sheaths, and 1-2 other sheaths at the base. **Leaf** erect, thickly coriaceous, elliptical, subacute to obtuse, 4-8 cm long including a petiole 1-1.5 cm long, 0.8-1 cm wide, narrowed below into the petiole. **Inflorescence** an erect, strict, congested, distichous, densely many-flowered raceme 8-10 cm long including the peduncle 1-1.5 cm long, with several to many flowers open simultaneously, with a slender spathe 5-10 mm long, below the apex of the ramicaul; floral bracts conspicuous, oblique, infundibular, acute, 4-5 mm long; pedicels 1-1.5 mm long; ovary 1 mm long; **sepals** yellow suffused with brown to yellow-green, glabrous externally, pubescent within, broadly ovate, obtuse, the dorsal sepal 2.5 mm long, 2.6 mm wide, 3-veined, connate below the middle, the lateral sepals 2 mm long, 2 mm wide, 3-veined; **petals** transversely oblong-ovate, concave, 1 mm long, 1.25 mm wide, 3-veined, the margin broadly rounded, slightly thickened; **lip** thick, transversely oblong, the apex rounded with a thickened margin, 0.6 mm long, 1.1 mm wide, 0.8 mm deep, shallowly concave anteriorly with a glenion, the dorsum with a broad, minutely pubescent callus, sometimes more or less trilobed, the base truncate, hinged to an obsolescent column-foot; **column** stout, 1 mm long, 1.5 mm wide, with the anther and the bilobed stigma apical.

ECUADOR: **Loja**: without locality, July 1838, *T. Hartweg 38* (Holotype of *S. loxensis*: K), C. Luer illustr. 19940; near Loxa, 1842, *T. Hartweg 849* (LD); summit of Cerro Villonaco, alt. 2600 m, 12 Apr. 1974, *G. Harling & L. Andersson 13458* (GB); between Loja and Zamora, alt. 2000 m, 6 Mar. 1977, *C. Luer, J. Luer & K. Cordoba 1544* (SEL); at pass north of Loja, alt. 3000 m, 12 Feb. 1978, *C. Luer, J. Luer & M. Portilla 2544* (SEL); Nudo de Sabanilla, northern part, alt. 2600 m, 9 Feb. 1982, *G. Harling, J. Bohlin, M. Lindström & S. Roth 20498* (GB), C. Luer illustr. 20461; same data, *G. Harling, J. Bohlin, M. Lindström & S. Roth 20494, 20496, 20499* (GB); Nudo de Sabanilla, western slope above Yangana, alt. 2500 m, 3 Apr. 1985, *G. Harling & L. Andersson 23623* (GB).
Zamora-Chinchipe: east of the pass between Loja and Zamora, alt. 2700 m, 21 Mar. 1985, *C. Luer, J. Luer, A. Hirtz & W. Flores 10776A* (MO).

This small species, endemic in high altitudes of southern Ecuador, is characterized by a densely caespitose habit with the ramicauls fasciculate and more or less ascending. The multiflowered raceme is congested with proportionately large, conspicuous, alternating floral bracts that exceed the flowers that are borne by short pedicels, much shorter than the floral bracts. The pubescent sepals are similar to those of the common *Stelis argentata* Lindl., and the lip is also type-A, but with three calli on the dorsum.

387. **Stelis lugoi** Luer & Endara, sp. nov.

Ety.: Named for Holguer Lugo, collector of this species and numerous others in Ecuador.

Inter species sectionis *Stelidis*, habitu parvo caespitoso, racemo subdense plurifloro quam folio angustissime elliptico longiore acuto, sepalis glabris late ovatis obtusis similibus, petalis transversis trinervis, et labello subovoideo obtuso antice concavo callo transverso prominenti distinguitur.

Plant small, epiphytic, caespitose; roots slender. Ramicauls erect, slender, 1-1.5 cm long, enclosed by a tubular sheath from below the middle and 2-3 other sheaths about the base. **Leaf** erect, coriaceous, narrowly elliptical, acute, 3-5.5 cm long including a petiole ca. 1 cm long, 0.2-0.3 cm wide dry, narrowed below into the petiole. **Inflorescence** an erect, sublax, subflexuous, several-flowered raceme, 5-8 cm long excluding the peduncle 1.5-2 cm long, from an annulus below the apex of the ramicaul; floral bracts oblique, acute, 2.5-3 mm long; pedicels 2-2.5 mm long; ovary 1 mm long; **sepals** purple, similar, broadly ovate, obtuse, 2.2 mm long, 2.2 mm wide, 3-veined with veins confluent, cellular-glandular, connate below the middle; **petals** transversely ovate, the apex obtuse with the margin thickened, shallowly concave, 0.8 mm long, 1 mm wide, 3-veined; **lip** thickly subtriangular, obtuse, concave anteriorly, 0.75 mm long, 0.8 mm wide, 0.4 mm deep, the bar prominent with a glenion, the dorsum concave, base truncate, hinged to the tip of the column-foot; **column** semiterete, 1 mm long, 1 mm wide, the foot obsolescent, the anther and the bilobed stigma apical.

ECUADOR: **Pastaza**: Teresa Mama on the Río Bobonaza, south east of Sarayacu, alt. unknown, 26 Aug. 1979, *H. Lugo 5722* (Holotype of *S. lugoi*; AMES), C. Luer illustr. 21031.

This spindly little species from southern Ecuador is distinguished by very narrow leaves, a much shorter ramicaul, and a longer raceme with prominent floral bracts. The widely expanded sepals are similar, broadly ovate with the three veins closed. The thickly margined petals are three-veined. The type-A lip has a prominent bar with a glenion.

388., 388a. **Stelis majorella** Luer & Hirtz, sp. nov.

Ety.: From the Latin *majorella*, "diminutive of *major*," referring to smaller flowers.

Species haec *Stelidis majoris* Rchb.f. affinis, sed habitu inflorescentiaque minoribus, foliis longipetiolatis, racemo laxo subflexuoso differt.

Plant small to medium in size, epiphytic, caespitose; roots slender. Ramicauls erect, stout, 1.5-4 cm long, enclosed by a loose, tubular sheath, and another at the base. **Leaf** erect, coriaceous, elliptical, subacute to obtuse, 3.5-5 cm long including a petiole 1-2 cm long, 1.5-2 cm wide, cuneate below into the petiole. **Inflorescence** an erect, lax, subflexuous, several-flowered raceme with a few flowers open simultaneously, 5-13 cm long including the peduncle 2-4 cm long, from an annulus below the apex of the ramicaul; floral bracts dilated, acute, 3 mm long; pedicels 2-3 mm long; ovary 1.5-2 mm long; **sepals** similar, expanded and recurved, concave basally, yellow, tan, to purple, or suffused with rose, glabrous but with distinctly long-ciliated margins, broadly ovate, obtuse, connate basally, 3-3.5 mm long, 3-3.5 mm wide, 3-veined; **petals** transversely oblong, 1.25 mm long, 2 mm wide, 3-veined, concave below the broadly rounded, narrowly thickened, apical margin; **lip** subdiscoid, 1 mm long, 1.5 mm wide, 0.75 mm deep, the apex broadly rounded with an incurved margin, shallowly concave anteriorly within the margin, the bar thick and protuberant with a conspicuous glenion, the base broadly truncate, hinged to the base of the column; **column** stout, 1.5 mm wide, the shaft terete, elongated, 1 mm long, the foot 0.5 mm long, the anther and the stigma apical and bilobed with the lobes confluent beneath the rostellar flap.

ECUADOR: **Morona-Santiago**: north of Gualaquiza, alt. 1600 m, 17 May 1988, *C. Luer, A. Hirtz, A. Andreetta & W. Teague 13424* (Holotype of *S. majorella*: MO); near Chigüinda, alt. 1600-1800 m, April-May 1887, *F.C. Lehmann 6563* (AMES); between Tumbes and Indanza, north of Gualaquiza, alt. 1700 m, 17 Apr. 1985, *G. Harling & L. Andersson 24245* (GB); Limón, alt. 1400 m, cultivated at Ecuagenera, Gualaceo, 5 July 2002, *A. Hirtz 8267* (MO), C. Luer illustr. 20205.

El Oro: above the gold mines near Zaruma, alt. ca. 1200 m, collected Sept. 1980, flowered in cultivation 29 Mar. 1981, *C. Luer 5994* (SEL).
Zamora-Chinchipe: south of Valladolid, near Zumba, alt. 1000 m, cultivated by Ecuagenera, Gualaceo, 5 Mar. 2001, *C. Luer, J. Luer & A. Hirtz, 19735* (MO).

This handsome species is not uncommon in southeastern Ecuador. It is similar to *Stelis major* Rchb.f. of Venezuela, but differs in having long-petiolate leaves; a loose, subflexuous raceme, and considerably smaller flowers. The sepals are recurved, broadly ovate and long-ciliated, and the central apparatus protrudes from the concave center of the flower. The petals are rounded and concave, surrounding the column with an elongated shaft as found in *Stelis columnaris* Lindl. The type-C lip with a tall center of the bar with a glenion fits beneath the column.

389. **Stelis maloi** Luer, Phytologia 49(3): 230, 1981.

Ety.: Named in honor of Dr. Benigno Malo of Cuenca who first collected this species.

Plant small, epiphytic, densely caespitose; roots numerous, slender. Ramicauls erect, slender, 5-15 mm long, enclosed by a tubular sheath, and another at the base. **Leaf** erect, coriaceous, elliptical, petiolate, acute to subacute, 15-40 mm long including a petiole 5-13 mm long, 5-8 mm wide, narrowly cuneate below into the petiole. **Inflorescence** an erect, loosely few-flowered raceme with 2-3 flowers open simultaneously, 3-7 cm long including the peduncle 2-4 cm long, from an annulus below the apex of the ramicaul; floral bracts oblique, 1.5-2 mm long; pedicels 1-1.5 mm long; ovary 1-1.5 mm long; **sepals** rose, glabrous, broadly ovate to suborbicular, transversely obtuse, convex, connate basally into a cup, the dorsal sepal 2-2.5 mm long, 1.75-2 mm wide, 3-veined, the lateral sepals 1.75-2 mm long, 1.5-1.75 mm wide; **petals** light yellow or light green, transversely elliptical-oblong, concave, 1 mm long, 1.25 mm wide, 3-veined, with the apex transversely obtuse with a thin margin; **lip** yellow or green, thick, subquadrangular, concave with the apex broadly rounded, 1.25 mm long, 1 mm wide, 0.5 mm deep, the base filled with a thick, transverse callus, densely villous-pubescent posteriorly, hinged to a short column-foot; **column** stout, 1 mm long, 0.75 mm wide, the anther and the stigma apical, with the stigma transversely oblong.

ECUADOR: **Zamora-Chinchipe**: forest between Loja and Zamora, alt. ca. 1500 m, collected by B. Malo, flowered in cultivation at Tarqui, 5 May 1981, *C. Luer 6095* (Holotype of *S. maloi*: SEL); Cordillera del Condor, east of Paquisha, alt. 1450 m, 19 Feb. 1986, *C. Luer, J. Luer, A. Hirtz, W. Flores & A. Embree 11939* (MO); east of Los Encuentros, alt. 1300 m, 19 May 1988, *C. Luer, A. Hirtz, A. Andreetta & W. Teague 13478* (MO).
Napo: new road between Tena and Coca, alt. 1100 m, 22 Feb. 1982, *C. Luer & A. Hirtz 6941* (SEL); between Cotundo and Coca, alt. 1130 m, 19 June 1983, *C.H. & P.M. Dodson, D. Benzing & A. Hirtz 14116* (SEL).
Pichincha: near Chiriboga, alt. 2000 m, 7 Mar. 1982, *C. Luer & A. Hirtz 7227* (SEL).
Pastaza: near Puyo, 9 Oct. 1961, *C.H. Dodson & L.B. Thien 953* (MO).
Tungurahua: Río Topo, alt. 1300 m, 15 July 1983, *A. Hirtz 1100* (SEL).
Morona-Santiago: new road west of Macas toward Guamote, alt. 1550 m, 16 Jan. 1989, *C. Luer, J. Luer, A. Hirtz et al. 13932* (MO); Cordillera del Condor, east of Chuchumbletza, alt. 1650 m, 21 May 1988, *C. Luer, A. Hirtz, A. Andreetta & W. Teague 13525* (MO); Cordillera del Condor, east of Guismé, alt. 1650 m, 20 Jan. 1989, *C. Luer, J. Luer, A. Jesup & P. Jesup 14012* (MO); east of Los Encuentros, alt. 1450 m, 4 Feb. 1987, *C. Luer, J. Luer & A. Hirtz 12615* (MO); new road from Mendez to Paute, alt. 1680 m, 3 Mar. 2001, *C. Luer, J. Luer & A. Hirtz 19630* (MO); Guarumales, alt. 1400-1800 m, 18 Apr. 2001, *A. Hirtz, X. Hirtz, H. Zelenko & R. Zloch 7576, 7718* (MO).
Zamora-Chinchipe: Estación Cientifica San Francisco, between Loja and Zamora, alt. 1810 m, 12 Dec. 2004, *F. Werner 1419* (MO).

This species, apparently endemic in southeastern Ecuador, is characterized by a small habit, and a loose, few-flowered raceme longer than narrowly elliptical leaves. The sepals are similar, suborbicular and convex beyond their union into a cup that holds the central apparatus. The petals are thin, suborbicular and concave. The type-B lip is thick, oblong, obtuse and concave with a broad, pubescent callus across the base.

390. **Stelis megalocephala** Luer, Phytologia 49(3): 231, 1981.

Ety.: From the Greek *megalocephalos*, "with a large head," referring to the proportionately large dorsal sepal.

Plant small, epiphytic, caespitose; roots slender. Ramicauls erect, slender, 5-25 mm long, enclosed by 2 loose, tubular sheaths. **Leaf** erect, coriaceous, elliptical, subacute to obtuse, 10-45 mm long including a petiole 3-15 mm long, 5-10 mm wide, cuneate below into the petiole. **Inflorescence** a suberect, lax, flexuous, successively 2- to 7-flowered raceme, 10-15 mm long, borne by a peduncle 5-20 mm long, from an annulus below the apex of the ramicaul; floral bracts oblique, ovate, 2-2.5 mm long; pedicels 1.5-2 mm long; ovary 1.5 mm long; **sepals** purple to green, microscopically pubescent within, connate basally, the dorsal sepal broadly ovate to suborbicular, convex, 5-7 mm long, 5-6 mm wide, 5- to 7-veined, the lateral sepals oblong, obtuse, 4-6 mm long, 2-3.5 mm wide, 3-veined, connate 1 mm, held forward; **petals** purple, transversely ovate, shallowly concave below the thickened, broadly rounded margin, 1.25 mm long, 1.5 mm wide, 3-veined; **lip** purple, thick, transversely ovoid, 0.5 mm long, 1.25 mm wide, 0.8 mm thick, shallowly concave anteriorly within the thick, rounded apex, the dorsum with a low, rounded, cellular-pubescent callus continuous with a glenion, the base truncate, hinged to the base of the column; **column** stout, 0.75 mm long, 1.25 mm wide, the foot obsolescent, the anther and the stigma apical, the stigma bilobed.

ECUADOR: **Morona-Santiago**: along Río Calagras, alt. 1600 m, 19 Sept. 1980, *C. Luer, J. Luer et al. 5503* (Holotype of *S. megalocephala*: SEL).
Tungurahua: along Río Topo at the bridge, alt. 1630 m, 27 Feb. 2001, *C. Luer, J. Luer & A. Hirtz 19542* (MO).

This small species is characterized by a proportionately large flower that is produced successively in a short raceme no longer than the leaf. The dorsal sepal is large, suborbicular and erect, while the smaller lateral sepals are held forward. The petals are three-veined, and the lip is type-A with a dorsal callus presenting forward across the bar as the glenion.

391., 391a. **Stelis microchila** Schltr., Repert. Spec. Nov. Regni Veg. 9: 289, 1911.

Ety.: From the Greek *microcheilos*, "a minute lip," referring to the labellum.

Syn.: *Stelis barbata* Rolfe, Bull. Misc. Inform. Kew, 141, 1913.
Ety.: From the Latin *barbatus*, "barbed," referring to the long pubescence of the sepals.

Syn.: *Stelis costaricensis* Schltr., Beih. Bot. Centralbl. 36(2): 2, 388, 1918, not *S. costaricensis* Rchb.f., 1855.
Ety.: Named of Costa Rica, country of origin.

Syn.: *Stelis bryophila* Schltr., Repert. Spec. Nov. Regni Veg. Beih. 19: 16, 1923.
Ety.: From the Greek *bryophilos*, "moss-loving," referring to the habitat.

Syn.: *Stelis cinerea* Schltr., Beih. Bot. Centralbl. 36(2): 444, 1918, replaced name for *Stelis costaricensis* Schltr., 1918.
Ety.: From the Latin *cinereus*, "ash grey," referring to the color of the flower.

Plant small, epiphytic, caespitose; roots slender. Ramicauls erect, slender, 0.4-0.8 cm long, enclosed by 2-3 tubular sheaths. **Leaf** erect, coriaceous, elliptical-obovate, subacute to obtuse, 2-4 cm long including the petiole 0.3-1 cm long, 0.5-1.2 cm wide, cuneate below into the petiole. **Inflorescence** an erect, dense, distichous, subsecund, many-flowered raceme with several flowers open simultaneously, 5-8 cm long including the peduncle 2-5 cm long, with a few bracts, from an annulus below the apex of the ramicaul; floral bracts oblique, ovate, 2 mm long; pedicels 1 mm long; ovary 0.75 mm long; **sepals** expanded, olive-colored, with long, dense, white pubescence within, glabrous externally, connate basally, ovate, narrowly obtuse, the dorsal sepal 2 mm long, 1.25 mm wide, 3-veined, the lateral sepals 1.5 mm long, 1.25 mm wide, 3-veined; **petals** purple, cuneate-obovate, shallowly concave, 0.6 mm long, 0.6 mm wide, 1-veined, the apex broadly rounded with the margin thickened; **lip** purple, oblong-trilobed, thick, 0.4 mm long, 0.2 mm wide, the apical lobe, oblong, truncate, the lateral lobes thick, erect, broadly rounded, cellular, concave between, the base truncate, hinged to the base of the column; **column** stout, 0.5 mm long, the foot obsolescent, the anther and the stigma apical, the stigma widely bilobed.

GUATEMALA: **Alta Verapaz**: near Pansamalá, alt. 3,800 ft., July 1886, *H. von Türckheim 700* (Holotype of *S. microchila* destroyed at B; Lectotype here designated: AMES 22591; Isolectotype: BR, G); near Pansamalá, alt. 3,800 ft., Aug. 1887, *H. von Türckheim 700* (K); near Cobán, alt. 1550 m, Aug. 1912, *H. von Türckheim 2494* (AMES, G, US, W); vicinity of Cobán, alt. 4000 ft., 5 Sept.

1920, *H. Johnson 729* (AMES); between Tactic and Tamahú, alt. 1500-1600 m, 1-7 Apr. 1941, *P.C. Standley 91399* (AMES); along river above Las Islas near Carchá, alt. 1300 m, 28 Nov. 1990, *C. Luer, J. Luer & M. Behar 14851* (MO). **Baja Verapaz**: Cerro Verde near Parvulá, alt. 1700 m, 28 Apr. 1882, *F.C. Lehmann 1358* (G); near del Biotopo, alt. 1660 m, 15 June 1985, *E. Martínez 13123* (MEXU, MO).
MEXICO: **Chiapas**: near Laguna Ocotal Grande, alt. 950 m, 20 July-20 Aug. 1954, *R.L. Dressler 1436* (AMES); between Tziscao and Pacayal, alt. 1000 m, 9 Aug. 1985, *T. Chehaibar et al. 247* (AMO); Las Margaritas, toward Cruz de Rosario, alt. 1500-1600 m, 9 Aug. 1992, *M.A. Soto & R. Solano 7328* (AMO, MO).
EL SALVADOR: **Santa Ana**: Cerro Montecristo, Trifiño, alt. 2300 m, 25 Feb. 1978 *F. Hamer 664* (AMES. MO).
COSTA RICA: **Cartago**: near Cachí, flowered in cultivation at Kew, Nov. 1912, *C.H. Lankester 384* (holotype of *S. barbata*: K; clonotype: AMES); Tablazo, alt. ca. 1900 m, July 1908, *C. Brade s.n.* [holotype of *S. costaricensis* Schltr. (*S. cinerea*) destroyed at B; lectotype here designated: AMES 23702, illustr. of type]; Navarito, 3 Feb. 1924, *C.H. Lankester s.n.* (AMES); La Carpintera, alt. 1500-1850 m, Feb. 1924, *P.C. Standley 34478* (AMES); Volcán Turrialva, alt. 2000 m, 17 Mar. 1986, *C. Luer, J. Luer, D. Dod & D. Retana 12090* (MO). **Alajuela**: Colinas de La Palma, alt. 1250 m, 15 Dec. 1922, *A.M. Brenes 502* (AMES); El Coyolar, alt. 240 m, 1 Apr. 1924, *P.C. Standley 39733* (AMES). **Heredia**: Yerba Buena northeast of San Isidro, alt. 2000 m, 22-28 Feb. 1926, *P.C. Standley 49202, 49203, 49994* (AMES); San Jeronimo, alt. 1400 m, Nov. 1920, *C. Wercklé 82* holotype of *S. bryophila* destroyed at B; lectotype here designated: AMES 30421, photo and illustr. of type). Dept. of Puntarenas: Monteverde Reserve, leeward cloud forest, alt. 1500 m, 17 Feb. 1992, *S. Ingram, K. Ferrell-Ingram & N. Edmondson 1337* (SEL).
PANAMA: **Coclé**: mountains beyond La Pintada, alt. 400-600 m, *A.A. Hunter & P.H. Allen 590* (AMES); El Valle de Antón, alt. ca. 1000 m, *C. Luer, J. Luer, R. Dressler & P. Taylor 1020* (SEL).
ECUADOR: **Imbabura**: Estación Carchi, alt. 1800 m, Dec. 1983, *A. Hirtz 1456* (MO).
Pichincha: east of Patricia Pilar, Río Palenque, flowered in cultivation July 1977, *C. Luer 1769* (SEL); Centenela, flowered in cultivation 17 Mar. 1981, *C. Luer 5983* (SEL); Río Cinto between Lloa and Mindo, alt 2000 m, 12 Oct. 1990, *A. Hirtz, X. Hirtz & J. del Hierro 5102* (MO), C. Luer illustr. 19478; west of San Miguel de los Bancos, alt. 800 m, Mar. 2004, *A. Hirtz 8689* (MO), C. Luer illustr. 20851, **Esmeraldas**: west of Lita, alt, 800 m, 13 Aug. 1986, *A. Hirtz 2948* (MO). **El Oro**: Cordillera Mollopungo, Muyuyacu, east of Río Chico, alt. 1100 m, Aug. 1990, *A. Hirtz 4907* (MO).

This species is relatively frequent and variable in its wide distribution through Costa Rica and Panama into western Ecuador. Vegetatively, the small plants are not remarkable, but the congested, secund inflorescence is distinctive. In various populations the flowers appear grey-green, grey-purple, or purple-black with a dense, long, white pubescence of the sepals. The petals are proportiolately large but single-veined, and the tiny, distinctive, three-lobed lip is a variation of type-B.

392. **Stelis mononeura** Lindl., Folia Orchid. *Stelis* 4(25), 1858.

Ety.: From the Greek *mononeuron*, "one nerved," referring to the petals.

Syn.: *Stelis fasciculata* Luer, Phytologia 49: 229, 1981.
Ety.: From the Latin *fasciculatus*, "fasciculata," referring to the racemes.

Plant medium in size, epiphytic, densely caespitose; roots slender. Ramicauls erect, slender, 10-18 cm long, with a tubular sheath from near the middle and 2-3 tubular sheaths at the base. **Leaf** erect, coriaceous, elliptical, acute, petiolate, 7-12 cm long including a petiole 1-1.5 cm long, the blade 1.5-2.2 cm wide, cuneate below into the petiole. **Inflorescence** 3-15 erect, congested, many-flowered racemes 8-15 cm long including the peduncle ca. 1 cm long, with many flowers open simultaneously, with a spathe 6-7 mm long, from an annulus below the apex of the ramicaul; floral bracts oblique, acute, 2.5 mm long; pedicels 1.5 mm long; ovary 1 mm long; **sepals** green to yellow, with or without purple suffusion, glabrous externally, long-villous within, elliptical, obtuse to round at the apex, 3-veined, connate basally, the dorsal sepal 2.5 mm long, 1.75 mm wide, the lateral sepals held forward, opposite when expanded, oblique, 2.5 mm long, 1.75 mm wide; **petals** green or purple, broadly oblong, concave and round at the thickened, cellular-papillose apex, 1.5 mm long, 1.25 mm wide, 1-veined; **lip** green or purple, oblong-ovoid, 0.75 mm long, 0.7 mm wide, 0.4 mm deep, concave anteriorly with the apex obtuse, the anterior surface excavate beneath the shelf-like bar, the dorsum convex, minutely pubescent, the base truncate, hinged to an obsolescent column-foot; **column** stout, 1 mm long, with the anther and the bilobed stigma apical.

COLOMBIA: **Nariño**: woods near Pasto, *W. Jameson s.n.* (Holotype of *S. mononeura*: K).
ECUADOR: **Carchi**: Bolívar, above La Paz, alt. 3100 m, 18 Feb. 1998, *C. Luer, J. Luer, A. Hirtz & J. del Hierro 18733* (MO); same data, alt. 3300 m, *C. Luer et al. 18746, 18751* (MO).
Tungurahua: Hda. Lieto, vicinity of Patate, alt. 2800 m, 5 Aug. 1939, *E. Asplund 8091* (AMES, S); between Lieto and Triunfo, alt. 2800-3000 m, 25 Aug. 2001, *A. Hirtz et al. 7764* (MO).

Napo: between Papallacta and Baeza, along Río Papllacta, alt. 2050, 6 June 1973, *L. Holm-Nielsen, S. Jeppesen, B. Løjtnant & B. Ølgaard 6984* (AAU); north of Baeza, alt. ca. 2000 m, 10 Aug. 1978, *C. Luer, J. Luer, A. Hirtz & A. Andreetta 3226* (SEL); between Salcedo and Puerto Nuevo, Río Anatenario, alt. 2800 m, 27 May, 1979, *B. Løjtnant, A. & U. Molau 13819* (AAU, GB); near Papallacta, alt. 3000 m, 29 Oct. 1979, *C. Luer, J. Luer & A. Hirtz 4430* (SEL); below Papallacta, alt. 2770, 15 May 1981, *C. Luer & J. Luer 6230* (holotype of *S. fasciculata*: SEL).

This species occurs at high altitudes of the Andes from southern Colombia to central Ecuador. It is characterized by several to many crowded racemes that are about as long as the elliptical leaf. The sepals are long-pubescent within with the laterals held forward; the petals are oblong, concave, single-veined, and minutely papillose on the thickened margin; and the type-B lip is about as long as broad with the anterior half deeply concave.

393., 393a. **Stelis morganii** Dodson & Garay, Ic. Pl. Trop. 328, 1980.

Ety.: Named in honor of H.H. "Pete" Morgan, co-collector of this species.

Plant medium in size, epiphytic, ascending; roots slender. Ramicauls erect, fasciculate, slender, 2-4 cm long, enclosed by 3 loose, tubular sheaths. **Leaf** erect, coriaceous, elliptical to elliptical-ocate, acute, 3-7 cm long including the petiole 0.5-1 cm long, 1-2.2 cm wide, cuneate below into the petiole. **Inflorescence** an erect, congested, distichous, many-flowered raceme, with a few flowers open simultaneously, 2.5-6 cm long including the peduncle 1 cm long, borne behind the leaf, from an annulus below the apex of the ramicaul; floral bracts oblique, inflated, acute, 1.5-2 mm long; pedicels 1 mm long; ovary 1 mm long; **sepals** white, yellow-white, or pale rose, with a long, fine pubescence above the middle, connate basally, transversely ovate, obtuse, 1.25-1.5 mm long, 2 mm wide, 3-veined; **petals** pale green, transversely ovate, cellular-glandular, shallowly concave, 0.6 mm long, 0.6 mm wide, 1-veined, the apex broadly rounded, thickened along the margin; **lip** pale green, ovoid-subquadrate, thick, cellular-glandular, 0.5 mm long, 0.6 mm wide, 0.3 mm deep, the anterior surface shallowly concave with the apex broadly rounded, transversely thickened across the center, with a small glenion, the dorsum shallowly concave with a low, red, central callus, the base truncate, hinged to the base of the column; **column** stout, 0.5 mm long, 0.6 mm wide, the foot obsolescent, the anther and the bilobed stigma apical.

ECUADOR: **Pichincha**: Dos Ríos, between Santo Domingo and Quito, alt. 1200 m, flowered in cultivation 10 May 1980, *C.H. Dodson, H.H. Morgan, B. Løjtnant & U. Molau 7796* (Holotype of *S. morganii*: SEL); between Quito and Santo Domingo, Río Pilatón, alt. 1100-1400 m, 14 June 1973, *L. Holm-Nielsen, S. Jeppesen, B. Løjtnant & B. Ølgaard 7153* (AAU, AMES, SEL); between Alluriquin and Chiriboga, alt. 1100 m, 20 Apr. 1977, *M.T. Madison 4060* (SEL); same area, alt. 1000 m, 31 Mar. 1984, *C. Luer, S. Dalström, T. Höijer & A. Hirtz 9835* (MO); between Mindo and Puerto Quito, alt. 1600 m, 13 Mar. 1982, *C. Luer, S. Dalström & A. Hirtz 7327* (SEL); road to silver mine above Toachi, alt. 1500 m, 14 Mar. 1982, *C. Luer, S. Dalström & A. Hirtz 7354* (SEL); between San Miguel de los Bancos and Mindo, alt. 1450 m, 1 Apr. 1984, *C. Luer, S. Dalström, T. Höijer & A. Hirtz 9873* (MO).
Cotopaxi: páramo between Quevedo and Latacunga, alt. 3500 m, 5 Mar. 1985, *C. Luer & R. Kent 316* (SEL).
Imbabura: above Garcia Moreno, alt. 1850 m, 1 Mar. 1992, *S. Dalström 1598* (MO).
Chimborazo: orange grove below Bucay, alt. 600 m, 14 Aug. 1978, *C. Luer, J. Luer, A. Hirtz & A. Andreetta 3310* (SEL).
Bolívar: Balzapamba, between Babahoyo and Guaranda, alt. 730 m, 21 May 1960, *C. Dodson 676* (SEL); same area, in citrus trees, alt. 700 m, 23 Mar. 1984, *C. Luer, S. Dalström, T. Höijer & J. Kuijt 9669* (MO).
Morona-Santiago: Gualaquiza, alt. 800 m, flowered in cultivation at Ecuagenera, Gualaceo, 27 July 2004, *A. Hirtz 8930* (MO).
Loja: above Jimbura, alt. 2800 m, 1 Feb. 2003, *A. Hirtz et al. 8487* (MO).
Azuay: Cordillera del Molleturo, above Río Shurimal, alt. 640 m, 27 Jan. 1992, *C. Luer, J. Luer, A. Hirtz, A. & P. Jesup 16174* (MO).

This species is widely distributed on the western declivities of the Andes of Ecuador. Vegetatively, the plants are distinguished by ascending fascicles of short ramicauls, and congested racemes of tiny flowers borne behind the leaves that approach the leaves in length. The sepals are transversely ovate with a long, fine pubescence. The minute petals are single-veined, and the dorsal callus of the type-A lip protrudes forward through the bar as a glenion.

Stelis dressleri Luer of Panama is similar, but the sepals are glabrous.

394. **Stelis muscifera** Lindl., Folia Orchid. *Stelis* 2(6), 1858.

Ety.: From the Latin *muscifer*, "fly-bearing," in allusion to the flowers.

Syn.: *Stelis bangii* Rolfe ex Rusby, Mem. Torrey Bot. Club 4: 260, 1895.
Ety.: Named for Miguel Bang, the collector.

Syn.: *Stelis amblyophylla* Schltr., Repert. Spec. Nov. Regni Veg. Beih. 6: 33, 1919.
Ety.: From the Greek *amblyophyllus*, "blunt-leaved," referring to the obtuse apex of the leaves.

Syn.: *Stelis trinitatis* Ames, Sched. Orchid. 2: 15, 1923.
Ety.: Named for Trinidad, where the species was collected.

Syn.: *Stelis trinitensis* Ames ex Broadway, Orchid Rev. 34: 134, 1926, sphalm. Ames

Plant small to medium in size, epiphytic, densely caespitose; roots slender. Ramicauls erect, stout, 1.5-7 cm long, enclosed by a loose, tubular sheath from near the middle and 2-3 sheaths at the base. **Leaf** erect, coriaceous, elliptical to narrowly elliptical, subacute to obtuse, 3.5-10 cm long including an indistinct petiole ca. 1 cm long, the blade 0.7-1.8 cm wide, narrowly cuneate below into the petiole. **Inflorescence** an erect, distichous, congested, many-flowered raceme with several overlapping flowers open simultaneously, 5-18 cm long including the peduncle 4-5 cm long, with a spathe 0.5-1 cm long, from an annulus below the apex of the ramicaul; floral bracts oblique, acute, 3-5 mm long; pedicels 1.5 mm long; ovary 1 mm long; **sepals** expanded, purple, glabrous, transversely ovate, obtuse, deeply connate, the dorsal sepal 2.5-5 mm long, 4-5.5 mm wide, 5-veined, the lateral sepals 2-3.5 mm long, 3.5-5 mm wide, 5-veined; **petals** dark purple, transversely ovate, shallowly concave below with the broadly obtuse apex with a broad, flat margin, deeply concave below a transverse callus, 1 mm long, 1.5 mm wide; **lip** dark purple, thickly triangular, 0.5-0.6 mm long, 0.75-1 mm wide, 0.75-1 mm deep, shallowly concave anteriorly with a narrow glenion, with the apex obtuse with a broad margin, the dorsum minutely pubescent with a rounded callus, flanked on either side with a smaller or obscure callus, the base broadly truncate, hinged to the base of the column; **column** stout, 0.75-1 mm long, 0.75 mm wide, the anther and the bilobed stigma apical, the foot obsolescent.

VENEZUELA: **Aragua**: near Colonia Tovar, 1854-55, *A. Fendler 1460* (Holotype of *S. muscifera*: K; Isotypes: AMES, BR, G). **Dist. Fed.**: Caracas, exported by K.W. John, flowered in cultivation in May 1904, (holotype of *S. amblyophylla* destroyed at B, neotype here designated *C. Luer, J. Luer, A. Hirtz, A. & P. Jesup 13876* (MO).
TRINIDAD: Heights of Aripo, 10-26 Jan. 1922, *W.E. Broadway 9886* (holotype of *S. trinitatis*: AMES).
ECUADOR: **Tungurahua**: in guava trees along Río Negro north of Puyo, alt. 1500 m, 28 Mar. 1984, *C. Luer, S. Dalström, T. Höijer & J. Kuijt 9774* (MO).
Pastaza: Río Negro, alt. 1400 m, 13 Oct. 1984, *A. Hirtz & C.H. Dodson 2029* (MO).
Napo: between Tena ad Pano, alt. 750 m, 14 Dec. 1976, *E.W. Davis 401* (AMES).
Morona-Santiago: southeast of Sigsig, near Chigüinda, alt. 1600 m, 13 Jan. 1989, *C. Luer, J. Luer, A. Hirtz, A. & P. Jesup 13876* (MO); above Campimento Guarumales, alt. 1750 m, *C. Luer, J. Luer & A. Andreetta 15257* (MO).
Zamora-Chinchipe: Cordillera del Condor, east of Los Encuentros, alt. 1550 m, 18 May 1988, *C. Luer, A. Hirtz et al. 13462* (MO).

This species is vegetatively variable in its wide distribution through the Andes from coastal Venezuela into the Andes of Ecuador. The ramicaul is noticeably shorter than the leaf. The raceme is characterized by more or less conspicuous, alternating floral bracts. The shape of the flowers with all three broadly ovate sepals, much wider than long, and deeply connate into a broad, flat flower, is similar to that of the larger, robust *Stelis tristyla* Lindl. The petals are semilunate with a thick, flat margin and a transverse callus. The type-A lip is triangular and obtuse with a narrow glenion. Lindley mentions an apiculate lip, but none is present on a hydrated flower of the holotype.

395. **Stelis nanegalensis** Lindl., Folia Orchid. *Stelis* 8(54), 1858.

Ety.: Named for the community of Nanegal near where the species was collected.

Syn.: *Stelis vulcanica* Schltr., Repert. Spec. Nov. Regni Veg. 14: 125, 1915.
Ety.: From the Latin *vulcanicus*, "volcanic," referring to Pulalagua Crater.

Plant small to large, epiphytic, caespitose; roots slender. Ramicauls erect, stout, 2-6 cm long, enclosed by a tubular sheath near the middle and 2-3 others at the base. **Leaf** erect, coriaceous, elliptical, acute, subacute to obtuse, 5-11 cm long including the petiole 1.5-3 cm long, 1-3 cm wide, cu-

neate below into the petiole. **Inflorescence** an erect, subdense, distichous, subsecund, many-flowered raceme with several to many flowers open simultaneously, 10-26 cm long including the peduncle 3-10 cm long, with a few bracts, subtended by a spathe ca. 1 cm long, from an annulus below the apex of the ramicaul; floral bracts oblique, acute, 1-1.5 mm long; pedicels 1.5 mm long; ovary 1-2.5 mm long; **sepals** expanded, pale yellow, suffused with purple, or purple, glabrous externally, shortly pubescent or cellular-glandular within, connate basally, broadly ovate, obtuse, the dorsal sepal 2-5 mm long, 2-5 mm wide, 3-veined, the lateral sepals 2-5 mm long, 2-5 mm wide, 3-veined; **petals** yellow or purple, transversely cuneate-obovate, shallowly concave, 0.5-1 mm long, 1-1.5 mm wide, the apex broadly rounded with the margin thickened; **lip** yellow or purple, thick, transversely subquadrate, 0.6 mm long, 0.8-1 mm wide, 0.4 mm deep, shallowly concave inside the apical margin, the margin thin, minutely tri-apiculate centrally, the bar convex with a long, narrow glenion, the base broadly truncate, hinged to the base of the column; **column** stout, 0.5 mm long, 1 mm wide, the foot obsolescent, the anther and the stigma apical, the stigma bilobed.

ECUAROR: **Pichincha**: Nanegal, western declivity of Pichincha, alt. 10,000 ft., 1854, *W. Jameson s.n.* (Holotype of *S. nanegalensis*: K); Pulalagua Crater, alt. ca. 2800 m, Dec. 1871, *A. Sodiro 19* (holotype of *S. vulcanica*: destroyed at B, neotype here designated: Nanegal, flowered in cultivation at SEL, 13 June 1981, *C. Luer 6325*, SEL); Palmitopamba, west of Nanegal, alt. 1300 m, 23 Jan. 1974, *G. Harling & L. Andersson 11527* (AMES, GB); between Quito and Puerto Quito, alt. 700 m, 16 Dec, 1984, *Silva Sigcha 001* (QCA).
Imbabura: Los Cedros Reserve, alt. 1400 m, 23 June 1993, *S. Dalström, T. Höijer & H. Wanntorp 1734* (MO, SEL).
Cotopaxi: trail from El Corazon to Fecundo Vela, alt. 1300 m, 17 May 1980, *G. Harling & L. Andersson 19213* (GB).
Bolívar: between Chillanes and San José del Tambo, alt. 2500 m, 17 Feb. 1991, *C.H. Dodson et al. 18707* (MO).
Morona-Santiago: near Mendez on Río Paute, alt. ca. 600 m, cultivated in Chamblee, GA, 18 July 1988, *F L Stevenson 88-718-2* (MO); Chiviasa, east of Limón, alt. 1300 m, 21 Oct. 1999, *A. Hirtz 7020* (MO).
El Oro: west of Piñas, alt. 900 m, 8 Oct. 1979, *C.H. Dodson, A. Gentry & G. Shupp 8985* (MO); Hda. Ducay, southeast of Limón-playa, alt. 500 m, 18 Mar. 1995, *X. Cornejo & C. Bonifaz 3834* (GUAY).
Zamora-Chinchipe: Loyola, east of Valladolid, alt. 1800 m, cultivated by Ecuagenera, Gualaceo, 17 Apr. 2001, *A. Hirtz 7592* (MO).
Nariño: La Planada Reserve, alt. 1750 m, 5 Jan. 1988, *A. Gentry, O. de Benevides & P. Keating 60431* (MO).
COLOMBIA: **Antioquia**: Parque Nacionál Natural Las Orquídeas, alt. 1300 m, 30 Mar. 1988, *A. Cogollo et al. 2827* (JAUM, MO).
BOLIVIA: **La Paz**: Nor Yungas, below Yolasa, alt. 1250 m, 24 Jan. 1983, *J.C. Solomon 9355* (MO).

This large Andean species is similar to the common and widely distributed *Stelis superbiens* Lindl. Both species have large, flat flowers with type-C lips. *Stelis nanegalensis* is distinguished from the latter by three teeth at the center of the curved margin of the lip. Elmer Smith's illustration (Garay, 1980) fails to show the three teeth.

50., **50a., 50b. Stelis oblonga** (Ruiz & Pav.) Willd., Sp. Pl. 4: 139, 1805.
Bas.: *Humboldtia oblonga* Ruiz & Pav., Syst. Veg. Fl. Peruv. et Chil. 236, 1798.
Ety.: From the Latin *oblongus*, "oblong," referring to the leaf.

Syn.: *Stelis floribunda* Kunth, Nov. Gen. Sp. 1: 362, 1815.
Ety.: From the Latin *floribundus*, "many-flowered," referring to the inflorescence.

Syn.: *Stelis fissa* Lindl., Folia Orchid. *Stelis* 5(28), 1858.
Ety.: From the Latin *fissus*, "split," referring to the bracts on the specimen examined.

Syn.: *Stelis apiculata* Schltr., Repert. Spec. Nov. Regni Veg. Beih. 7: 84, 1920, not Lindl., 1858.
Ety.: From the Latin *apiculatus*, "apiculate," referring to the labellum.

Syn.: *Stelis insignis* Ames, Sched. Orchid. 1: 5, 1922, as *S. insigne*.
Ety.: From the Latin *insignis*, "outstanding, noted," referring to the aspect of the species.

Syn.: *Stelis dodsonii* Luer, Monogr. Syst. Bot. Missouri Bot. Gard. 88: 42, 2002.
Ety.: Named for Calaway Homer Dodson, co-collector of this species.

PERU: **Huánuco**: Muña, *Pavón s.n.* (Holotype of *S. oblonga*: MA, Isotype: W).
ECUADOR: **Carchi**: between Tulcán and El Carmelo, alt. 3200 m, 5 Apr. 1984, *C. Luer, S. Dalström & T. Höijer 9961* (MO); Bolívar, above La Paz, alt. 3000 m, 18 Feb. 1998, *C. Luer, J. Luer, A. Hirtz & J. del Hierro 18741* (MO).
Sucumbíos: between Playón de San Francisco and El Carmelo, alt. 3000 m, 14 Apr. 1979, *B. Løjtnant, U. Molau & M. Madison 12520* (GB); west of El Carmelo, alt. 2900 m, 5 Feb. 1982, *C.H. Dodson & A. Gentry 12082* (SEL); terrestrial north of El Playon, alt. 3100 m, 20 Mar. 1991, *C. Luer, J. Luer & A. Hirtz 15185* (MO); south of Santa Barbara, alt. 2700 m, 20 Mar. 1991, *C. Luer, J. Luer & A. Hirtz 15208* (MO).
Esmeraldas: new road between Lita and San Lorenzo, alt. 600 m, 25 Jan. 1996, *A. Hirtz, X. Hirtz & J. del Hierro 6266* (MO).
Imbabura: near Tinajillo in El Pantel, alt. 2500 m, 8 Feb. 1880, *F.C. Lehmann 533, 534* (W); Selva Alegre, alt. 1400 m, May 1989, *A. Hirtz & X. Hirtz 4232* (MO), C. Luer illustr. 20434.
Pichincha: "Quito," without locality, 1848, *W. Jameson s.n.* (holotype of *S. fissa*: K); Valley of Lloa, alt. 8,000 ft., *Col. Hall s.n.* (K); towards the base of Pichincha in ravines, *W. Jameson s.n.* (K); west of Nono, alt. 2700 m, 12 June 1968, *G. Harling, G. Storm & B. Ström 10225* (GB).west of Calacalí and La Liberia, alt. 2100 m, 4 Apr. 1985, *C. Luer, J. Luer, A. Hirtz, C. Dodson & P. Dodson 11057* (holotype of *S. dodsonii*: MO); same area, alt. 2200 m, 7 Apr. 1984, *C. Luer, S. Dalström, T. Höijer & A. Hirtz 9996* (MO).
Napo: near Papallacta, alt. 2700 m, 15 May 1981, *C. Luer, J. Luer & A. Hirtz 6244* (SEL).
Morona-Santiago: between Guamote and Macas, alt. 3000 m, 14 Oct. 2004, collected by E. Sánchez, cultivated in Cuenca, *A. Hirtz 9107* (MO).
Loja: Cerro Villonaco, west slope, alt. 2800 m, 10 Feb. 1985, *G. Harling & L. Andersson 21869* (GB), C. Luer illustr. 20520; west of the pass between Loja and Zamora, alt. 2700 m, 14 Feb. 1985, *G. Harling & L. Andersson 22066* (GB), C. Luer illustr. 20521; San Pedro de Vilcabamba, alt. 2400 m, 23 Apr. 1986, *D. D'Alessandro 624* (MO); army road east of Yangana, alt. 2500 m, 22 Mar. 1985, *C. Luer, J. Luer, A. Hirtz & W. Flores 10808* (holotype of *S. oxychila*: MO).
Zamora-Chinchipe: between Loja and Zamora, alt. 1950-2100 m, 15 Apr. 1973, *L. Holm-Nielsen, S. Jeppesen, B. Løjtnant & B. Ølgaard 3444* (AAU, AMES); south of Yangana, alt. 2250 m, 11 May 1981, *C. Luer, J. Luer & A. Hirtz 6180* (SEL).
COLOMBIA: **Cauca**: Andes of Popayán, near Poblazón, alt. 1210 hex., Nov. 1801, *A. Humboldt & A. Bonpland s.n.* (holotype of *S. floribunda*: P); around Huila, Río Paez valley, Tierra Adentro, alt. 1600-1900 m, Jan. 1906, *H. Pittier 1299* (holotype of *S. insignis*: AMES); without locality, 1909-1911, *M. Madero s.n.* (holotype of *S. apiculata* Schltr. destroyed at B, neotype here desinated: *C. Luer, S. Dalström & T. Höijer 9961* (MO).

Stelis oblonga was first described from Peru by Ruiz & Pavón as *Humboldtia oblonga*; Kunth described it as *S. florbunda* from a collection by Humboldt and Bonpland from Colombia: and Lindley described it as *S. fissa* from a collection by Jameson from Ecuador. Most recently it was described and illustrated in *Icones Pleurothallidinarum* 24, Part One, Fig. 50.

This large species is widely distributed in the Andes from Colombia, through Ecuador into Peru. It is variable vegetatively, often large with the leaves broad and elliptical-oblong. One to several racemes, as long as or longer than the leaf, of crowded, small flowers are produced simultaneously. Except for the internal pubescence that varies from short to long, the floral parts remain relatively constant and usually readily identifiable. The lip is type-B with the truncate apex abruptly acuminate-apiculate.

396., 396a. Stelis oblongifolia Lindl., Folia Orchid. *Stelis* 12(89), 1858.
Ety.: From the Latin *oblongifolius*, "with oblong leaves," referring to the leaves.

Syn.: *Stelis chachapoyensis* Rchb.f., Bonplandia 3: 225, 1855.
Ety.: Named for Chachapoyas, Peru, where the species was collected.

Syn.: *Stelis superposita* Schltr., Repert. Spec. Nov. Regni Veg. 14: 124, 1915.
Ety.: From the Latin *superpositus*, "superposed," referring to the prolific habit.

Syn: *Stelis coturcoënsis* Schltr., Repert. Spec. Nov. Regni Veg. Beih. 8: 52, 1921.
Ety.: Named for Mt. Coturco where the species was collected.

Plant medium to large in size, epiphytic, scandent; roots slender. Ramicauls ascending, slender, prolific, 15-20 cm long below to 3-6 cm long above, enclosed by a tubular sheath near the middle and another sheath at the base. **Leaf** erect, coriaceous, elliptical-oblong, subacute to obtuse, petiolate, 5-10 cm long including the petiole 1-2 cm long, 1.5-2.5 cm wide, cuneate below into the petiole. **Inflorescence** an erect, congested, distichous, many-flowered raceme with many flowers open simultaneously, 10-17 cm long including the peduncle 2-3 cm long, from an annulus below the apex of the ramicaul; floral bracts infundibular, 2-4 mm long; pedicels 1-2 mm long; ovary 1-2 mm long; **sepals** purple, yellow or white, glabrous externally, minutely cellular-glandular within, broadly ovate, obtuse, connate below the middle, the dorsal sepal 4-4.5 mm long, 3-4 mm wide, 3- to 5-veined, the lateral sepals 3-4 mm long, 2.5-3.5 mm wide, 3-veined; **petals** purple, transversely ovate, 0.6-1.25 mm long, 1-1.9 mm wide, 3- to 4-veined, with the apex broadly obtuse with a thick, flattened margin, the base broadly truncate; **lip** suffused with purple, thick, subquadrate, 0.6-1.4 mm long, 0.6-1.3 mm wide, the apex obtuse, concave anteriorly with a long glenion, the dorsum with 1 or 3 low, rounded calli, the base truncate, hinged to the base of the column; **column** stout, 0.75-1 mm long, 0.8-1.2 mm wide, the foot obsolescent, the anther and the stigma apical, the stigma bilobed.

ECUADOR: **Pichincha**: without locality, (R.74), *W. Jameson s.n.* (Holotype of *S. oblongifolia*: K); without locality, *W. Jameson 74* (W); between Quito and Chiriboga, alt. 2400 m, 14 Mar. 1963, *C.H. Dodson & L.B. Thien 2390* (SEL); above Papallacta, alt. 2770 m, 15 May 1981, *C. Luer, J. Luer & A. Hirtz 6234* (SEL); between Quito and Santo Domingo, alt. 1700 m, 12 Mar. 1976, *C. Luer, J. Luer & P. Taylor 821, 823* (SEL); west of Nono, alt. 3200 m, 9 Mar. 1976, *C. Luer, J. Luer & P. Taylor 781* (SEL); Pululahua Valley, alt. 2500 m, 15 Feb. 1978, *C. Luer, J. Luer & A. Hirtz 2589* (SEL); between Nono and Calacalí, alt. 2800 m, 9 Mar. 1982, *C. Luer & S. Dalström 7219, 7222* (SEL); San Miguel de los Bancos, alt. 2300 m, 31 Mar. 1984, *C. Luer, S. Dalström & T. Höijer 9878* (MO); Río Guajalito, old road between Quito and Santo Domingo, alt. 1800-2200 m, 16 Feb. 1986, *V. Zak 835* (AMES, G, MO); new road between Quito and Santo Domingo, alt. 2450 m, 1 Mar. 1986, *C. Luer, C. Dodson, A. Hirtz & A. Embree 12046* (MO).
Carchi: road embankment near pass between Tulcán and Maldonado, alt. 3000 m, 16 Mar. 1991, *C. Luer et al. 15073* (MO).
Imbabura: Selva Alegre, alt. 1400 m, May 1989, *A. Hirtz & X. Hirtz 4218* (K, MO).
Napo: between Cuyuja and Papallacta, alt. 2800-2900 m, 5 June 1973, *Holm-Nielsen et al. 6863* (AAU, AMES).
Bolívar: west of Guaranda toward Balzapamba, alt. 2000 m, 26 Mar. 1984, *C. Luer, A. Hirtz, S. Dalström, T. Höijer & J. Kuijt 9730A* (MO); north of Guaranda toward Fecundo Vela, alt. 3000 m, 24 Mar. 1984, *C. Luer et al. 9676* (MO); at pass north of Chillanes, alt. 2650 m, 25 Mar. 1984, *C. Luer et al. 9723* (MO).
Chimborazo: Riobamba, "monte Coturco prope Pifo" (Pifo is in Pichincha), alt. 3200 m, *L. Mille 13* (holotype of *S. coturcoënsis* destroyed at B; lectotype here designated QPLS).
Napo: near Oyacachi, Jan. 1901, *A. Sodiro 8* (holotype of *S. superposita*, lectotype here designated: BR).
Loja: Loma de Loro, south of Saraguro, alt. 3200 m, 11 Feb. 1985, *G. Harling & L. Andersson 21880* (GB, QCA).
Morona-Santiago: Ave Maria Pass between Gualaceo and Limón, alt. 2800 m, 8 May 1981, *C. Luer, J. Luer & A. Hirtz 6124* (SEL).
Cañar: at the pass between Azogues and Taday, alt. 3100 m, 30 Mar. 1985, *G. Harling & L. Andersson 23427* (GB).
Azuay: Surucucho, July 1864, *W. Jameson sn* (W); east of Cuenca, above Sayaus, alt. 3200 m, 15 Mar. 1958, *D.S. Correll E357* AMES, TEX); km. 67 south of Cuenca, alt. 3250 m, 4 May 1973, *L. Holm-Nielsen, S. Jeppesen, B. Løjtnant & B. Ølgaard 4930* (AAU, SEL); above Sayausid, alt. 3000 m, 18 Mar. 1974, *G. Harling & L. Andersson 12595* (GB); near Lago Zorrogucho, alt. 3000 m, 2 Mar. 1977, *C. Luer, J. Luer & K. Cordoba 1495* (SEL); south of Cumbe, new road to Giron, alt. 3000 m, 27 Feb. 1982, *C. Luer & A. Pozo 7039* (SEL); new road west of Zorrogucho, alt. 3250 m, 16 Mar. 1984, *C. Luer, S. Dalström, T. Höijer & J. Kuijt 9522* (MO); above Lago Zorrogucho, alt. 3200 m, 15 Feb. 1986, *C. Luer, J. Luer, A. Hirtz, W. Flores & A. Embree 11784* (MO).
PERU: **Amazonas**: Chachapoyas, on rocks, *Mathews 3701* (holotype of *S. chachapoyensis*: K).
Piura: Huancabamba, above Canchaque, road to Huancabamba, alt. 3000 m, 9 Oct. 1957, *P.C. Hutchison 1586* (G, UC).

This large, frequent species is variable in its wide distribution from northern Ecuador into northern Peru. It is characterized by a prolific habit; oblong-elliptical leaves; and a longer, crowded inflorescence. The sepals are broadly obtuse, about four millimeters long and wide; the petals are transverse with the apex obtuse and thickened; and the remarkedly variable lip is subquadrate, variations of type-A, with the apex obtusely triangular. No two populations have the same details of the lip.

397. **Stelis oreada** Luer & Endara, sp. nov.

Ety.: A name from the mythological mountain nymphs, the dryads.

Inter species sectionis *Stelidis*, habitu parvo ascendenti foliis ellipticis, racemo subdense multifloro, sepalis glabris ellipticis obtusis subaequalibus, petalis transversis uninervis, et labello subcirculari ad apicem breviter triangulari obtuso ad basim truncato breviter pubescenti infra medium bicalloso demisso.

Plant small, epiphytic, repent-ascending, rhizome stout, 0.5-1 cm long between ramicauls; roots coarse. Ramicauls erect, stout, 2-3 cm long, enclosed by a loose, tubular sheath from below the middle and 2-3 other sheaths below the middle and at the base. **Leaf** erect, coriaceous, 3-5 cm long including a petiole 0.5-1 cm long, the blade elliptical, subacute, 0.5-0.7 cm wide dry, cuneate below into the slender petiole. **Inflorescence** 1-2 erect, sublax, subflexuous, several- to many-flowered racemes, 9-12 cm long including the peduncle 3 cm long, from an annulus below the apex of the ramicaul; floral bracts oblique, acute, 2-3 mm long; pedicels 1.5 mm long; ovary 1 mm long; **sepals** purple, elliptical, obtuse, glabrous, the dorsal sepal 2.5 mm long, 2 mm wide, 3-veined, connate near the base to the lateral sepals, the laterals held more or less forward, 2.5 mm long, 1.8 mm wide, 3-veined; **petals** transversely cuneate, truncate, shallowly concave, thickened externally especially along the vein, 0.75 mm long, 1.1 mm wide, 1-veined; **lip** subcircular, slightly concave, 1 mm long, 1 mm wide, 0.4 mm deep, the apex with a broad, obtuse triangle, the base truncate, minutely pubescent, shallowly concave centrally between a pair of low indistinct calli; **column** semiterete, 1 mm long, 1 mm wide, the foot obsolescent, the anther and the stigma apical, the stigma bilobed.

ECUADOR: **Tungurahua**: Cordillera de Llanganates, near junction of Río Golpe and Río Sangarinas, bajada de San Antonio, 16 Nov. 1939, without altitude *E. Asplund 9752* (Holotype of *S. oreada*: AMES; Isotype: S), C. Luer illustr. 21028.
Napo: toward Mt. Guanami, above Papallacta, no alt. recorded, 22 Sept. 1939, *E. Asplund 8759* (S), C. Luer illustr. 21029.

This species is distinguished by a subcircular, slightly concave modification of a type-B lip, elliptical sepals, and single-veined petals. Another collection made by Asplund (*8759*) later on 22 September, of the same year, in the province of Napo, toward Mt. Guamani, above Papallacta and again without recording an altitude, has similar flowers, but the plant is considerably smaller with the inflorescence no longer than the leaf. The later collection is probably a dwarf variation of the same species.

398. **Stelis pan** Luer & Hirtz, sp. nov.

Ety.: Named for Pan, a Greek mythological god of the forests and satyrs.

Species haec *Stelidis transversalis* Ames affinis, sed sepalis papillosis et lateralibus non expansis fere dimidio connatis differt.

Plant large, epiphytic, caespitose; roots coarse. Ramicauls erect, stout, 7-10 cm long, with a loose tubular sheath below the middle and 2-3 loose sheaths about the base. **Leaf** erect, thickly coriaceous, elliptical, obtuse to rounded at the apex, 9-13 cm long, 3-4 cm wide, cuneate below into the subsessile base. **Inflorescence** an erect, distichous, densely many-flowered raceme with many flowers open simultaneously, to 35 cm long including the peduncle ca. 9 cm long, subtended by a spathe 2.5 cm long, from the base of the leaf; floral bracts close, tubular, 2 mm long; pedicels 3 mm long; ovary 1.5 mm long; **sepals** purple below the middle, green toward the apex, papillose above the middle, the dorsal sepal ovate, acute, 6 mm long, 4 mm wide, 5-veined, the lateral sepals parallel, oblong, obtuse, oblique, more or less approximate, 6 mm long, 2 mm wide, 4-veined; **petals** red-purple, transversely ovate, shallowly concave, 1 mm long, 2 mm wide, the apex broadly rounded and thickened; **lip** red-purple, ovoid-triangular, shallowly concave, 0.5 mm long, 0.8 mm wide, 0.8 mm deep, the apex broadly rounded with the margin thickened, the bar transversely thickened with a minute glenion, the dorsum with a low, broad, rounded callus, the base truncate, hinged to the base of the column; **column** stout, 0.5 mm long, 0.8 mm wide, the foot obsolescent, the anther and the bilobed stigma apical.

ECUADOR: **Napo**: west of Tena, alt. 600 m, Mar. 1982, flowered in cultivation 7 Dec. 1982, *C. Luer, J. Luer & A. Hirtz 8504* (Holotype of *S. pan*: SEL).

This large, robust species is apparently rare and restricted to the eastern slope of the Andes of central Ecuador. It is obviously related to *Stelis transversalis* Ames of Central America. The present species is characterized by a tall, erect inflorescence that surpasses the large, elliptical leaf. The comparatively large flowers are borne perpendicular to the rachis in two crowded, opposite facing ranks. The sepals are purple and green, diffusely papillose above the middle, and with the dorsal sepal expanded 180° opposite the close pair of lateral sepals. The petals are transverse and fleshy. The type-A lip is ovoid-triangular, much shorter than long, with a round callus on the dorsum.

399. Stelis physoglossa Luer & F.Werner, sp. nov.

Ety.: From the Greek *physoglossa*, "a blown up tongue," referring to the deeply concave labellum.

Planta parva, racemo multifloro subflexuoso foliis anguste ellipticis duplolongiore, sepalis late ovatis intus longipubescentibus, lateralibus prorsum tenentibus, petalis incrassatis et labello suborbiculato profunde excavato distinguitur.

Plant small, epiphytic, caespitose; roots slender. Ramicauls erect, slender, 1.5-2.5 cm long, enclosed by 2-3 imbricating, tubular sheaths. **Leaf** dark olive green, erect, coriaceous, narrowly elliptical, acute, 3.5-4 cm long, including a petiole 0.5-0.7 cm long, the blade 0.7-0.9 cm wide, narrowly cuneate below into the petiole. **Inflorescence** an erect, distichous, subflexuous, many-flowered raceme with several flowers open simultaneously, 8-10 cm long including the peduncle ca. 3 cm long, without an obvious spathe, from an annulus below the apex of the ramicaul; floral bracts oblique, acute, 2 mm long; pedicels 1 mm long; ovary 1 mm long; **sepals** glabrous externally, long-pubescent within, broadly ovate, connate below the middle, the dorsal sepal acute to subacute, 2.5 mm long, 2 mm wide, 3-veined, the lateral sepals obtuse, concave, directed forward, 2 mm long, 2 mm wide, 3-veined; **petals** transversely ovate, with the apex broadly obtuse with a thick margin, shallowly concave at the base, 0.75 mm long, 1 mm wide; **lip** spheroid, 1.25 mm long, 1 mm wide, 0.75 mm deep, deeply concave anteriorly with the margins thin, subtruncate at the apex, the dorsum shelf-like, deeply cleft to near the base, the base truncate, hinged to the base of the column; **column** stout, 1.2 mm long, 1.2 mm wide, the anther and the bilobed stigma apical.

ECUADOR: **Zamora-Chinchipe**: Estación Cientifica San Francisco, between Loja and Zamora, alt. 1750 m, 14 Jan. 2004, *F. Werner 767* (Holotype of *S. physoglossa*: MO: Isotype: LOJA), C. Luer illustr. 20926.

This species is similar to *Stelis coelochila* Luer & Hirtz, but it differs in a smaller habit and a subflexuous raceme of smaller flowers. The sepals are similarly long-pubescent within with the lateral sepals shallowly concave and directed forward. The type-B lip is spherical, widely gaping and deeply concave with thin margins.

76. **Stelis pilosissima** Luer, Monogr. Syst. Bot. Missouri Bot. Gard. 95: 115, 2004, replaced name for *S. pilosa* Pridgeon & M.W.Chase, 2002.

Ety.: From the Latin *pilosissimus*, "with very long hairs," referring to densely pubescent sepals.

Bas. *Stelis pilosa* Luer & Hirtz, Monogr. Syst. Bot. Missouri Bot. Gard. 88: 56, 2002, non *S. pilosa* Pridgeon & M.W.Chase, 2002, [=*Effusiella amparoana* (Schltr.) Luer].

ECUADOR: **Pastaza**: forest north of Mera, alt. 1350 m, 12 Apr. 1985, *C. Luer, J. Luer, A. Hirtz & W. Flores 11202* (Holotype of *S. pilosa*: MO).

This species was described and illustrated in *Icones Pleurothallidinarum* 24, Part One, Fig. 76. It is characterized by the small, caespitose habit and a several-flowered raceme surpassing the elliptical leaf. The floral bracts are inflated; the sepals are ovate, obtuse, more or less equal, and covered within by a dense pubescence; and the petals are thin, three-veined and concave. The type-A lip is thickly discoid with a minutely pubescent, short dorsum.

400. **Stelis platystachya** Garay & Dunst., Venez. Orchid. Illustr. 6: 424, 1976.

Ety.: From the Greek *platystachys*, "broad spike," referring to the broad, flat peduncle.

Plant medium to large, epiphytic, caespitose; roots slender. Ramicauls erect, slender, 3-6.5 cm long, enclosed by a tubular sheath from below the middle and 2-3 other sheaths about the base. **Leaf** erect, coriaceous, narrowly elliptical, acute, 7-11 cm long including an indistinct petiole ca. 1.5 cm long, 1-1.5 cm wide, cuneate below into the petiole. **Inflorescence** an erect, subcongested, distichous, slightly flexuous, successively flowering raceme, to 40 cm long, including a broadly flattened peduncle 7-15 cm long, with several flowers open simultaneously, with a slender spathe 7-8 mm long below the apex of the ramicaul; floral bracts oblique, acute, 3 mm long; pedicels 2 mm long; ovary 1 mm long; flowers greenish to reddish; **sepals** expanded, slightly convex, densely short-pubescent within, broadly ovate, obtuse, connate below the middle, 3-veined, the dorsal sepal 2 mm long, 2.7 mm wide, the lateral sepals 1.75 mm long, 2 mm wide; **petals** thick, transversely oblong-ovate, concave below the broadly rounded apex with a thick, rounded margin, 1 mm long, 1-25 mm wide, 3-veined; **lip** thick, subsemiorbicular, 0.75 mm long, 1 mm wide, 0.75 mm deep, concave anteriorly within the broadly rounded, thickened margin, the bar thick, with a raised glenion, continuing on the dorsum into a broad, low rounded callus, the base broadly truncate, hinged to the base of the column; **column** stout, terete, 1 mm long, 1 mm wide, the anther and bilobed stigma apical.

COLOMBIA: **Norte de Santander**: between El Carmen and Convención, *M.B. Foster 1774* (Holotype of *S. platystachya*: AMES; Isotype: COL).
VENEZUELA: **Táchira**: Alto de Alianzo, above Capacho, alt. ca. 1700 m, fide Dunsterville; north of Las Delicias, alt. ca. 1900 m, *C. García E. s.n.* fide Dunsterville in *Venezuelan Orchids Illustrated.*
ECUADOR: **Zamora-Chinchipe**: above Río Yambala, east of Vilcabamba. alt. 2400 m, 19 May 1986, *D. D'Alessandro 697* (MO), C. Luer illustr. 20502.

This distinct species is rare, but widely distributed in the Andes from western Venezuela to southern Ecuador. It is unique in the genus with an elongated, broadly flattened peduncle, which becomes a slender, slightly flexuous rachis that flowers over a long period of time, sometimes attaining 40 centimeters in length. The sepals are broadly ovate and minutely pubescent, the petals are transverse with broadly rounded margins, and the type-C lip is rounded and concave anteriorly with a similar, rounded margin.

401. **Stelis polybotrya** Lindl., Folia Orchid. *Stelis* 4(21), 1858.

Ety.: From the Greek *polybotrys*, "with many racemes," referring to the inflorescence.

Syn.: *Stelis myriantha* Schltr., Repert. Spec. Nov. Regni Veg. Beih. 7: 90. 1920, not Lindl., 1858.
Ety.: From the Greek *myrianthos*, "many-flowered," referring to the inflorescence.

Syn.: *Stelis recurvula* Schltr., Repert. Spec. Nov. Regni Veg. Beih. 9: 68, 1921.
Ety.: From the diminutive of the Latin *recurvus*, "recurved," referring to the recurved sepals.

Syn.: *Stelis gonzaleziana* C.Schweinf., Rev. Acad. Colomb. Cienc. 5: 349, 1943.
Ety.: Named for the Gonzales family at the request of the collector C. Vargas.

Plant medium to large in size, epiphytic, densely ascending-caespitose; roots slender. Ramicauls erect, slender, 6-13 cm long, enclosed by a close, tubular sheath near the middle and 2-3 other sheaths about the base. **Leaf** erect, coriaceous, elliptical-oblong, subacute to obtuse, 5-8 cm long including a petiole ca. 1 cm long, the blade 1-1.5 cm wide, cuneate below into the petiole. **Inflorescence** 3-10, rarely to 20, erect, congested, distichous, simultaneously many-flowered racemes, 2-8 cm long, flowering to near the base, from a spathe 5-10 mm long at an annulus below the apex of the ramicaul; floral bracts oblique, acute, 1-1.5 mm long; pedicels 0.5-1 mm long; ovary 1 mm long; **sepals** expanded, yellow, glabrous, ovate, obtuse, connate basally, the dorsal sepal 1-1.5 mm long, 1-1.5 mm wide, faintly 3-veined, the lateral sepals 1-1.25 mm long, 1 mm wide, faintly 3-veined, (is sometimes vestigial); **petals** yellow, thin, broadly cuneate to subcircular, with the apex concave, broadly rounded, and thickened on the margin, 0.75 mm long, 0.75-1 mm wide, 1-veined; **lip** yellow, thick, oblong, 0.6-0.8 mm long, 0.5-0.8 mm wide, 0.3-0.5 mm deep, concave above the middle with the apex obtuse, the bar slightly channeled, minutely short-pubescent toward the base, the base broadly truncate, hinged to the base of the column; **column** stout, terete, ca. 1 mm long, 0.5 mm wide, the anther and stigma apical, the stigma oblong, transverse with stigmatic lobes inside wings of the column, the foot obsolescent.

ECUADOR: **Pichincha**: Eastern Cordillera, alt. 13,000 ft., *W. Jameson s.n.* (Holotype of *S. polybotrya*: K); Andes of Quito, alt. 9,000 ft., 21 Jan. 1856, *W. Jameson 21* (AMES); Andes of Quito, 21 Jan. 1856, *W. Jameson 512* (AMES, G); eastern Cordilllera on trees, at 1,200 ft., *W. Jameson s,n.* (K); subandine forest, *L. Mille 6* (BR); Pasachoa, alt. 3400 m, Feb. 1984, *A. Hirtz 1548* (MO).
Carchi: Nudo de Boliche, Voladero, alt. 3800 m, 12 June 1939, *W.C. Penland & R.H. Summers 905* (AMES); between Tulcán and San Gabriel, alt. 3000-3100 m, 22 Nov. 1974, *G. Harling & L. Andersson 12024* (AMES, GB), C. Luer illustr. 21025; west of pass between Tulcán and Maldonado, alt. 3400 m, 16 Mar. 1991, *C. Luer, J. Luer, J. del Hierro, A. & X. Hirtz 15065* (MO).
Sucumbíos: Tulcán to El Carmelo, alt. 3000-3200 m, 23 Feb. 1978, *C. Luer, L. Luer & A. Hirtz 2755* (SEL); El Pun, near El Carmelo, alt. 3200 m, 26 Feb. 1974, *G. Harling & L. Andessson 12228* (GB); west of Carmelo, road to Alegeria, alt. 2900 m, 5 Feb. 1982, *C.H. Dodson & A.H. Gentry 12083* (MO, SEL).
Loja: above Jimbura, alt. 3350 m, 21 Mar. 1984, *C. Luer, S. Dalström, T. Höijer & J. Kuijt 9647* (MO); army road to TV tower east of Yangana, alt. 2500 m, 22 Mar. 1985, *C. Luer, J. Luer, A. Hirtz & W. Flores 10806* (MO); above Yangana north of the pass, alt. 2400 m, 23 Mar. 1985, *C. Luer, J. Luer, A. Hirtz & W. Flores 10869* (MO).
Azuay: north of Sevilla de Oro, alt. 8,000 ft., 27 July 1945, *W.H. Camp E-4455* (AMES, NY); Lago Zorrogucho, alt 3000 m, 10 Jan. 1958. *C.H. Dodson 280* (MO, SEL); same area, alt. 3000 m, 2 Mar. 1977, *C. Luer, J. Luer & K. Cordoba 1531* (SEL); Parróquia Baños, Yanasacha, alt. 2925 m, 26 Dec. 1976, *J.D. Boeke 609* (QCA, SEL).
Zamora-Chinchipe: south of pass south of Jimbura, alt. 3050 m, 21 Feb. 1986, *C. Luer, J. Luer & A. Hirtz 12035* (MO).
COLOMBIA: **Cauca**: around La Ceja near Inza, alt. 1800-2200 m, *F.C. Lehmann 6920* (holotype of *Stelis myriantha* destroyed at B, neotype here designated: *C. Luer, J. Luer & A. Hirtz 12035* (MO).
PERU: **Cajamarca**: mountains west of Huambos, alt. 3100-3200 m, May 1904, *A. Weberbauer 4175* (holotype of *S. recurvula* destroyed at B, neotype here designated *C. Luer, J. Luer, A. Hirtz & W. Flores 10765* (MO).
BOLIVIA: **Cochabamba**: Río Lupe Mendoza, alt. 2400-2600 m, 1 Feb. 1981, *C. Luer, J. Luer & R. Vásquez 5813* (SEL).

Stelis polybotrya is widely distributed in the Andes from Colombia into Bolivia at altitudes above 2500 meters above sea level. It is closely related to *S. hylophila* Rchb.f. with longer, fewer racemes, and the still smaller *Stelis braccata* Rchb.f. See discussion under *S. hylophila*. Typically, *S. polybotrya* produces a fascicle of three to twenty, densely many-flowered racemes distinctly shorter than the leaf. The flowers are minute with the sepals barely three-veined, and the petals single-veined. The illustration of a flower by Elmer Smith with distinctly veined sepals and three-veined petals labelled *S. polybotrya* (Garay, 1980) could not be *S. polybotrya*.

The leaves of both species vary from elliptical to obovate, and from acute to obtuse or rounded. Several to numerous densely many-flowered racemes are produced simultaneously in fascicles. Racemes vary in length from less than half the length of the leaf to about twice the length of the leaf. When longer than the leaf, they appear to represent a *Stelis hylophila*), while multiple short ones represent *Stelis polybotrya*. However, the length of the fascicles varies in all proportions when numerous collections are considered.

The sepals are less than one and a half millimeter long and wide, and three-veined, although the lateral veins of the dorsal sepal and the "outer" veins of the lateral sepals are sometimes almost lacking. The petals are thin, rounded and single-veined, and concave toward the more or less truncate apex. The lip is type-B, obtuse and concave anteriorly, with the bar thick, more or less shallowly channeled, and shortly pubescent dorsally toward the base. Variations in proportions vary.

The racemes and flowers of *Stelis braccata* Schltr. are similar, but vegetatively the latter is much smaller with narrow leaves. The sepals and lip are similar, except that the lip of *S. braccata* is shallower with the cavity occupying a larger portion, leaving the bar with less area at the base.

402. **Stelis porpax** Rchb.f., Bonplandia 2: 23, 1854.

Ety.: From the Greek *porpax*, "the handle of a shield," another of Reichenbach's cryptic names, that might refer to the lip.

Plant small, epiphytic, caespitose; roots slender. Ramicauls erect, slender, 2.5-4 cm long, enclosed by a long, tubular sheath and 2-3 other sheaths about the base. **Leaf** erect, thickly coriaceous, narrowly oblong, obtuse, 4.5-6 cm long including a petiole ca. 1 cm long, 0.8-1 cm wide, cuneate below into the petiole. **Inflorescence** an erect, congested, subsecund, simultaneously few-flowered raceme, 2-3 cm long including the peduncle ca. 1 cm long, from a slender spathe 8 mm long at an annulus below the apex of the ramicaul; floral bracts tubular, obtuse, 1.25 mm long; pedicels 1 mm long; ovary 1 mm long; **sepals** yellow-green, glabrous, broadly ovate, obtuse, the dorsal sepal 3 mm long, 2.2 mm wide, 3-veined, with the apex recurved, connate basally to the lateral sepals, the lateral sepals oblique, broadly undulate and held more or less forward, free from each other, 3 mm long, 2 mm wide, 3-veined; **petals** yellow-green, broadly ovate-flabellate, shallowly concave with the apical margin thickened, rounded, 1 mm long, 1.25 mm wide, 1-veined; **lip** yellow-green, ovate, concave, acute, curved forward, 1.5 mm long, 1.2 mm wide, 0.5 mm deep, the disc without callus or bar, the base broadly truncate, hinged to the base of the column; **column** 0.75 mm long, 0.6 mm wide, the anther apical, the stigmatic lobes apical, inside margins of the column, the foot obsolescent.

VENEZUELA: *Dist. Fed.*: Caracas, alt. 1600 m, *Wagener s.n.* (Holotype of *S. porpox*: W); tall cloud forest at 4,500 ft., above El Limón, Oct. 1960, *G.C.K. Dunsterville 561*.
ECUADOR: without collection data, cultivated at Ecuagenera, Gualaceo, 7 Mar. 2001, *C. Luer 19835* (MO).

Previously known only from Venezuela, this small species is now known from Ecuador, but without collection data. It is characterized by a few-flowered raceme that is shorter than the narrowly oblong leaf. The sepals are ovate with the laterals held forward. The broadly undulate lateral sepals are free from each other and when expanded, curve upward. The petals are flabellate and single-veined. The proportionately large, unclassified lip is ovate, acute, and concave, more or less spoon-shaped, without callus or bar.

403. **Stelis potpourri** Luer, sp. nov.

Ety.: From the French via the English *potpourri*, "a mixture," referring to various morphological features.

Species haec *Stelidis saccatae* Luer & Hirtz similis, sed habitu floribusque minoribus, sepalis lateralibus fere liberis et labello breviter acuminato acuto differt.

Plant large, densely ascending-caespitose; roots slender. Ramicauls fascicled, erect, stout, 10 cm long, enclosed by a loose, tubular sheaths above the middle, and another loose, tubular sheath enclosing the lower half. **Leaf** erect, coriaceous, elliptical, subacute, 7.5 cm long including a petiole 1 cm long, the blade 1.5 cm wide in the dry state, cuneate below into the petiole. **Inflorescence** an erect, congested, secund, simultaneously many-flowered raceme, to 23 cm long including the peduncle ca. 2 cm long, subtended by a spathe 1 cm long, at an annulus below the apex of the ramicaul; floral bracts oblique, acute, 2 mm long; pedicels 1.5 mm long; ovary 1-1.5 mm long; **sepals** yellow to yellow-brown, glabrous externally, cellular-pubescent within, convex with margins above the middle recurved, the dorsal sepal ovate, obtuse, 5 mm long, 3 mm wide, 3-veined, connate to the lateral sepals for 1 mm to form a short tube, the lateral sepals connate 1 mm, ovate, oblique, acute, held forward simulating a synsepal, each 5 mm long, 2.3 mm wide, faintly 3-veined; **petals** membranous, transversely obovate, broadly obtuse, shallowly concave, 0.6 mm long, 1.2 mm wide, the apical margin slightly thickened; **lip** subquadrate or ovoid, 0.6 mm long, 0.8 mm wide, 0.8 mm deep, the apex shortly acuminate, acute, concave anteriorly, extending deeply beneath the widely incised shelf-like bar, the dorsum smooth, slightly concave, the base truncate, hinged to the base of the column; **column** stout, 1 mm long, 0.7 mm wide, the foot obsolescent, the anther and the transversely bilobed stigma apical.

ECUADOR: **Morona-Santiago**: along trail to Campamento San Miguel, between Sigsig and Gualaquiza, alt. missing (ca. 3000 m), 9 Apr. 1968, *G. Harling, G. Storm & B. Ström 8128* (Holotype of *S. potpourri*: GB), C. Luer illustr. 21301.

The sepals of this species appear similar to those of *Stelis saccata* Luer & Hirtz, in spite of their being half the size, and the lateral sepals being nearly free, while those of *S. saccata* are connate into a bifid synsepal. The sepals of both

species are convex with recurved margins beyond their connation into a short tube. By the artificial definitions of the sections of the genus, *S. potpurri* becomes separated into those species with antrorse lateral sepals in section *Stelis*.

The petals of *Stelis potpourri* are membranous, only minimally thickened on the margin. The lip is ovoid with a short, sharp apiculum. The bar is a distinct, transverse shelf that is broadly cleft into a deep excavation beneath. The dorsum is smooth and slightly concave.

404. Stelis pudens Luer, Phytologia 49(3): 236, 1981.

Ety.: From the Latin *pudens*, "bashful," alluding to the sensitive flowers.

Plant small to medium in size, epiphytic, shortly repent or ascending-caespitose; roots slender. Ramicauls erect, slender, 2-5 cm long, enclosed by 3 loose, tubular sheaths. **Leaf** erect, coriaceous, narrowly elliptical, acute to subacute, 3-7 cm long including a petiole 1-2 cm long, 0.6-1 cm wide, gradually narrowed below into the petiole. **Inflorescence** an erect, congested, subsecund, many-flowered raceme with many flowers partially open simultaneously, 5-15 cm long including the peduncle 1-8 cm long, sparsely bracted, from an annulus below the apex of the ramicaul; floral bracts oblique, acute, 4 mm long below to 2.5 mm long above; pedicels 1 mm long; ovary 1 mm long; **sepals** glabrous and yellow-orange externally, light green and pubescent within, irritable, not widely spread, broadly ovate, obtuse, connate to near the middle to form a deep cup filled with the central apparatus, the dorsal sepal 1.75 mm long, 1.75-2 mm wide, 3-veined, the lateral sepals 1.25-1.6 mm long, 1.75 mm wide, 3-veined; **petals** light yellow, transversely obovate-flabellate, shallowly concave basally, thickened across the middle, 0.6-1 mm long, 0.9-1.25 mm wide, the apex broadly obtuse with the margin thickened; **lip** light yellow, orbicular-subquadrate, truncate, 0.8-1 mm long, 1-1.2 mm wide, 0.6 mm deep, concave between widely spread margins of the bar, creating an ill-defined, U-shaped callus, the base broadly truncate, hinged to the base of the column; **column** stout, 1.2 mm long, 1 mm wide, the foot obsolescent, the anther and the bilobed stigma apical.

ECUADOR: **Loja**: cloud forest south of Yangana, alt. 2250 m, 11 May 1981, *C. Luer, J. Luer & D. D'Alessandro 6179* (Holotype of *S. pudens*: SEL); west of the pass between Loja and Zamora, alt. 2300 m, 16 Apr. 1974, *G. Harling & L. Andersson 13655* (GB); Cerro Toledo, south of Yangana, alt. 2500 m, 7 Apr. 1985, *G. Harling & L. Andersson 23823* (GB).
Napo: north of Tena, new road to Coca, alt. 1100 m, 22 Feb. 1982, *C. Luer & A. Hirtz 6935* (SEL).
Morona-Santiago: between Limón and Gualaceo, alt. 1900-2000 m, 22 Mar. 1974, *G. Harling & L. Andersson 12745, 12748, 12816* (AMES, GB); above Campamento Guarumales, alt. 1830 m, 23 Mar. 1991, *C. Luer, J. Luer, A. Andreetta & L. Morocho 15225* (MO).
Zamora-Chinchipe: east of the pass between Loja and Zamora, alt. 2250 m, 22 May 1988, *C. Luer, A. Hirtz et al. 13580, 13585* (MO); Estación Cientifica San Francisco, between Loja and Zamora, alt. 1900 m, 21 Dec. 2003, *F. Werner 694* (MO), C. Luer illustr. 20984; north of Valladolid, below Cruz Chica, alt. 2100 m, 19 May 1986, *D. D'Alessandro 676* (MO).

This species is apparently endemic in southeastern Ecuador. It is distinguished by a small, ascending habit with a dense raceme of tiny flowers that surpasses the leaves. The flowers are irritable, the sepals barely closing over a proportionately large central apparatus. The petals and lip nearly as large as the sepals. A subquadrate, unclassified lip bears an ill-defined, U-shaped callus within the margins.

297. **Stelis purpurascens** A.Rich. & Galeotti, Compt. Rend. Hebd. Séances Acad. Sci. 18: 512, 1844, invalidly published; Ann. Sci. Nat. ser. 3, 3: 18, 1845.

Ety.: From the Latin *purpurascens*, "becoming purple," referring to the color of the flowers.

Syn.: *Stelis bourgeavii* Schltr., Repert. Spec. Nov. Regni Veg. 9: 284, 1911.
Ety.: Named for M. Bourgeau who collected this species.

Syn.: *Stelis curvata* Schltr., Repert. Spec. Nov. Regni Veg. 10: 358, 1912.
Ety.: From the Latin *curvatus*, "curved," referring to leaves and raceme.

Syn.: *Stelis carioi* Schltr., Repert. Spec. Nov. Regni Veg. 15: 202, 1918.
Ety.: Named for Oscar Richard Cario of Nordhausen, Germany, co-collector of this species.

Syn.: *Stelis fulva* Schltr., Beih. Bot. Centralbl. 36(2): 388, 1918.
Ety.: From the Latin *fulvus*, "dull yellow-grey," referring to colors of the flowers.

Syn.: *Stelis maxonii* Schltr., Beih. Bot. Centralbl. 36(2): 389, 1918.
Ety.: Named for William R. Maxon who collected this species.

Syn.: *Stelis purpusii* Schltr., Beih. Bot. Centralbl. 36(2): 391, 1918.
Ety.: Named for C.A. Purpus who collected this species.

Syn.: *Stelis alfaroi* Ames & C.Schweinf., Sched. Orchid. 8: 14, 1925.
Ety.: Named for Anastasio Alfaro who collected this species.

Syn.: *Stelis chiapensis* Solano, Orquídea (Mex.) 13(1-2): 23, 1993.
Ety.: Named for Chiapas, the state of Mexico where the species was collected.

Syn.: *Stelis sotoana* Solano, Orquídea (Mex.) 13(1-2): 97, 1993.
Ety.: Named in honor of Miguel Angel Soto, co-collector of this species.

Syn.: *Stelis thermatica* Luer & Dodson, Monogr. Syst. Bot. Missouri Bot. Gard. 112: 53, 2007.
Ety.: From the Greek *thermaticus*, "capable of tolerating heat," referring to the locality.

MEXICO: **Veracruz**: without locality, alt. 3,000 ft., 1840, *H.G. Galeotti 5110* (Holotype of *S. purpurascens*: P, photo at AMES; Isotypes: K, LE): without locality, *H.G. Galeotti 5236* (BR); Mirador, 1839, *J. Linden 211* (K); between Veracruz and Orizaba, collected by F. Mueller, distributed by *Meisner 1112* (K); Trinidad, in the valley of Cordova, 23 Jan. 1866, *M. Bourgeau 1914* (holotype of *S. bourgeavii*: P; isotypes: AMES, BR, G, K); Zacuapam, May, *C.A. Purpus 2111* (holotype of *S. purpusii* destroyed at B; lectotype here designated: AMES 24931, photo and illustr. of type); Fortin de las Flores, alt. 3000 ft., Nov. 1956, *W. Thomsen* (K). **Chiapas**: Mt. Tacana, alt. 2000 m, Aug. 1938, *E. Matuda 2388* (AMES); Mt. Ovando, alt. 2200 m, 14 Nov. 1939, *E. Matuda 3972* (AMES); Ocosingo, near Laguna Ocotal Grande, alt. 950 m, 20 Aug. 1954, *R.L. Dressler 1455* (AMES); north of Ocozocoautle toward Apitpac, alt. 1000 m, 9 July 1977, *T. Croat 40547* (MO); between San Cristóbal de las Casas and Ocosino, alt. 1320, 21 Apr. 1989, *M.A. Soto & E. Martinez 5475* (holotype of *S. chiapensis*: AMO). **Oaxaca**: Juquita, between Oaxaca and Puerto Escondido, alt. 1400 m, 22 Nov. 1992, *R. Solano, M.A. Soto, & R. Jiménez 543* (holotype of *S. sotoana*: AMO; isotype: MEXU). **Orizaba**: 1853, *F. Müller 1112* (K); Orizaba, 1853, *H. Schlumberger 1112* (BR). **Veracruz**: Zacuapan, *C.A. Purpus 3612* (AMES); south of Cordoba, alt. 700 m, 18 Feb. 1935, *O. Nagel 4602* (AMES); Volcán San Martín, 23 Mar. 1967, *M. Pena Sousa 63* (AMES).
GUATEMALA: **Alta Verapaz**: epiphytic in Cubilguitz, alt. ca. 350 m, July 1907, *H. von Türckheim II, 1889* (holotype of *S. curvata* destroyed at B, lectotype here designated: US, AMES ill 20853); near Cubilguitz, alt. 350 m, May 1913, *H. von Türckheim 4064* (holotype of *S. fulva* destroyed at B, lectotype here designated, AMES ill 23713); vicinity of Cobán, Chamá, alt. 900 ft., 15 June 1920, *H. Johnson 240* (AMES); east of Tactic, alt. 1450 m, 14 Apr. 1941, *P.C. Standley 92342* (AMES). **Guatemala**: near Guatemala, Nov. 1865, *M. Bourgeau & O.R. Cario 500* (holotype of *S. carioi* destroyed at B; lectotype here designated: AMES 23712, illustr. of type). **Quiche**: near Tocopilar, alt. 2000 m, 9 June 1882, *F.C. Lehmann 1753* (BR). **Quetzaltenango**: above Mujuliá, alt. 1800 m, 1 Feb. 1941, *P.C. Standley 85563* (AMES). **Santa Rosa**: Laguna de Carrizal, alt. 5,000 ft., May 1893, *J.D. Smith 4627* (AMES, BR).
SALVDOR: Comasagua, 22 May 1926, *S. Calderon 33* (AMES).
HONDURAS: slopes of Mt. Cangrejal, near Río Danto, alt. 900 ft., 30 July 1938, *T.G. Yunker, J.M. Koepper & K.A. Wagner 8707* (AMES, K, MO). **Comayagua**: Sigustepeque, alt. 3700 ft., 10 Nov. 1932, *J.B. Edwards 311* (K). **Morazán**: Río Yeguare, alt. 1600 m, 16 June 1948, *A. Molina 990* (AMES).
NICARAGUA: **Jinotega**: trail to Cerro de la Cruz, alt. 1050-1350 m, 27 June 1947, *P.C. Standley 10197* (F, AMES). **Matagalpa**: between Aranjuez and Peor de Nada, alt. 1500 m, 1 Nov. 1968. *A. Molina 22978* (F). **Nueva Segovia**: Cerro Mogoton, 13 June 1975, *J.T. Atwood & D. Neill AN18* (MICH, MO).
COSTA RICA: **Alajuela**: Alfaro Ruiz, Palmira, alt. 2200 m, 9 May 1938, *A. Smith H-531* (K); La Fuente, alt. 1200 m, 7 Oct. 1924, *A. Alfaro s.n.* (holotype: AMES; Isotype: K). **Heredia**: Volcán Poás, alt. 6500 ft., 6 Feb. 1940, *F.W. Hunnewell 16598* (AMES). **San José**: between San Marcos and Quepos, no alt., 4 Jan. 1992, *J.R. Grant & J.R. Rundell 92-01718* (CR, SEL, US).
PANAMA: **Chiriquí**: above Boquete, upper Caldera River, alt. 1450-1650 m, Mar. 1911, *W.R. Maxon 5697* (holotype of *S. maxonii* destroyed at B; lectotype here designated: AMES 26846, illustr. of type); southern slope of Cuesta de las Palmas, Cerro Horqueta, alt. 1700-2100 m, 17 Mar. 1911, *H. Pittier 3242* (AMES); near Fortuna dam, alt. 1100 m, 16 Feb. 1985, *C. Luer, J. Luer, R. Dressler & K. Dressler 10624* (MO). **Veraguas**: Veraguas, Sept. 1976, flowered in cultivation 24 Apr. 1977, *C. Luer & R. Dressler 1602, 1625* (SEL). **Panama**: Llano-Carti road, flowered in cultivation Mar.-June 1977, *C. Luer 1383, 1633* (SEL); Altos de Pacora, flowered in cultivation 25 Aug. 1981, *C. Luer 6446* (SEL).
ECUADOR: **Esmeraldas**: Sept. 1980, flowered in cultivation at SEL, 10 Apr. 1981, *C. Luer, J. Luer et al. 6008* (SEL); seasonally dry forest near Esmeraldas, alt. 100 m, Sept. 1980, flowered in cultivation at SEL, 23 Feb. 1982, *C. Luer, J. Luer, C. & P. Dodson 6839* (holotype of *S. thermatica*: SEL).

This species is frequent and variable in its wide distribution through Central America, where local variations have been described with numerous epithets, and lowland western Ecuador with still another epithet until it was recognized. Ames (longhand notes) had already reached the conclusion that *Stelis purpurascens* was a variable species. A collection of this species from coastal Ecuador, has been described and illustrated as *Stelis thermatica* Luer & Hirtz in *Icones Pleurothallidinarum* 29, Part Three, Fig. 297.

Vegetatively, plants vary from small to large and robust with a well-developed ramicaul. The inflorescences are elongate, but sometimes not surpassing the leaves. Numerous small flowers are sensitive to touch and are produced simultaneously in a congested, distichous raceme. The color varies through all shades of purple to green. The sepals are broadly ovate, obtuse and five-veined. The petals are cuneate and three-veined with thickened, flattened margins. The type-A lip is concave anteriorly, and obtuse with the margin thickened. A glenion descends from the bar that forms a flat dorsum beneath the column.

405., 405a., 405b., 405c. Stelis pusilla Kunth, Nov. Gen. Sp. 1: 361, 1816.

Ety.: From the Latin *pusillus*, "very small," referring to the habit.

Syn.: *Stelis polyclada* Lindl., Folia Orchid. *Stelis* 10(69), 1858.
Ety.: From the Greek *polyclados*, "many-branched," referring to the ramicauls on the rhizome.

Syn.: *Stelis myriantha* Lindl., Folia Orchid. *Stelis* 10(71), 1858.
Ety.: From the Greek *myrianthos*, "many-flowered," referring to the inflorescence.

Syn.: *Stelis microphylla* Lindl., Folia Orchid. *Stelis* 10(74), 1858.
Ety.: From the Greek *microphyllon*, "minute-leaved," referring to the habit.

Syn.: *Stelis apiculata* Lindl., Folia Orchid. *Stelis* 11(76), 1858.
Ety.: From the Latin *apiculatus*, "apiculate," referring to the labellum.

Syn.: *Stelis graminea* Lindl., Folia Orchid. *Stelis* 11(77), 1858.
Ety.: From the Latin *gramineus*, "grass-like," referring to the habit.

Syn.: *Stelis megahybos* Schltr., Repert. Spec. Nov. Regni Veg. 14: 122, 1915.
Ety.: From the Greek *megahybos*, "with a large projection," referring to the large labellar callus.

Syn.: *Stelis callicentrum* Schltr., Repert. Spec. Nov. Regni Veg. 15: 52, 1917.
Ety.: From the Latin *callicentrum*, "central callus," referring to the labellum.

Syn.: *Stelis citrina* Schltr., Repert. Spec. Nov. Regni Veg. Beih. 7: 86, 1920.
Ety.: From the Latin *citrinus*, "lemon yellow," referring to the color of the flowers.

Syn.: *Stelis tenuis* Schltr., Repert. Spec. Nov. Regni Veg. Beih. 7: 94, 1920.
Ety.: From the Latin *tenuis*, "thin," referring to the leaves.

Syn.: *Stelis elegantula* Schltr., Repert. Spec. Nov. Regni Veg. Beih. 27: 28, 1924.
Ety.: From the Latin *elegantulus*, "little-elegant," referring to the habit.

Syn.: *Stelis scandens* Schltr., Repert. Spec. Nov. Regni Veg. Beih. 27: 39, 1924, not Rolfe 1907.
Ety.: From the Latin *scandens*, "scandent," referring to the habit.

Syn.: *Stelis chabreana* Mansf., Ark. Bot. 20A(15): 15, 1926.
Ety.: Named for Morne Chabre in the Massif du Nord of Haiti, where the species was collected.

Syn.: *Stelis minuta* C.Schweinf., Bot. Mus. Leafl. Harvard Univ. 10: 120, 1942.
Ety.: From the Latin *minutus*, "minute," referring to the habit.

Syn.: *Stelis dazae* Garay, replaced name for *S. scandens* Schltr.
Ety.: Named for the community of Daza, northwest of Pasto, where the plant was collected.

Plant small to very small, epiphytic, caespitose to ascending; roots slender. Ramicauls ascending-fasciculate, erect, slender, 1-4 cm long, enclosed by a tubular sheath and 2-3 others below. **Leaf** erect, coriaceous, narrowly elliptical, acute, 2-4 cm long including the petiole ca. 0.5-1 cm long, 0.3-0.8 cm wide, gradually narrowed below into the petiole. **Inflorescence** an erect, sublax, distichous, few- to many-flowered raceme with a few to many flowers open simultaneously, 2-10 cm long including the peduncle 0.5-4 cm long, from an annulus below the apex of the ramicaul; floral bracts infundibular, 1-2 mm long; pedicels 1 mm long; ovary 0.75 mm long; **sepals** expanded, connate basally,

white, yellow, green, rose, light brown, rarely purple, glabrous to microscopically pubescent, ovate, obtuse, dorsal sepal 1-1.75 mm long, 1-1.75 mm wide, 3-veined, the lateral sepals 1-1.75 mm long, 1-1.5 mm wide, 3-veined; **petals** yellow or white, translucent, transversely cuneate, 0.5-0.6 mm long, 0.6-0.7 mm wide, 1-veined, shallowly concave below the broadly obtuse, subtruncate, thickened, apical margin; **lip** yellow or white, thick, subquadrate, 0.75-0.6 mm long, 0.6 mm wide, 0.3 mm deep, the apex obtuse with a small, obtuse apiculum, concave anteriorly, the dorsum with a low, indistinctly bilobed callus, minutely pubescent at the base, hinged to the base of the column; **column** stout, ca. 0.6 mm long, 0.6 mm wide, the foot obsolescent, the anther and the bilobed stigma apical.

Selected representative collections:
ECUADOR: **Pichincha**: Regno Quito, forested valley between the villages Ganse and Penipe, 1801, *A. Humboldt & A. Bonpland s.n.* (Holotype of *S. pusilla*: P); "Quito," 1849, *W. Jameson s.n.* (holotype of *S. polyclada*: K); forests of the Andes, *W. Jameson s.n.* (K); without locality, *W. Jameson R-76* (K, W); Andes of Ecuador, 1857-59, *R. Spruce 5879* (W), photo at AMES; Valley of Lloa, *W. Jameson 664* (BR, G, K); Quito, 1848, *W. Jameson s.n.* (holotype of *S. myriantha*: K); forests of the Andes, *W. Jameson 76* (K, W); "Peru," without collection data, *W. Jameson R-75* (holotype of *S. graminea*: K; isotype; W); Eastern Cordillera, alt. 13,000 ft., *W. Jameson s.n.* (holotype of *S. microphylla*: K); without locality, eastern slopes of the Andes, alt. 3200 m, *A. Mille s.n.* (holotype of *S. callicentrum* destroyed at B, lectotype here designated, *Mille 1b*, QPLS); "Quito," *H. Karsten s.n.* (W); Volcán Pululagua, Jan. 1883, *A. Sodiro 13* (holotype of *S. megahybos* destroyed at B; lectotype here designated, *Sodiro 3*, QPLS; lectotype: BR); Guayrapata, May 1859, *R. Spruce 5955* (K, W); between San Juan and Chiriboga, alt. 2900 m, 26 Apr. 1955, *E. Asplund 16054* (AMES, S).
Carchi: Volcán Chiles, alt. 10,800-11,300 ft., 17 Aug. 1944, *W.H. Camp E-324* (AMES, NY); between Tulcán and Maldonado, alt. 2400 m, 2-4 Apr. 1984, *C. Luer, S. Dalström & T. Höijer 9886, 9947* (MO); at the pass between Tulcán and Maldonado, alt. 3400 m, 16 Mar. 1991, *C. Luer, J. Luer, A. Hirtz et al. 15070* (MO); road embankment between El Angel and Tulcán, alt. 3200 m, 5 Apr. 1985, *C. Luer, J. Luer, A. & X. Hirtz 11060* (MO).
Imbabura: near Lago Mojanda, alt. 3300 m, 17 Feb. 1998, *C. Luer, J. Luer, A. Hirtz & J. del Hierro 18708* (MO); Mariano Acosta, alt. 3300 m, 1 May 2001, *A. Hirtz & X. Hirtz 7735* (MO).
Cotopaxi: between Angamarca and El Corazón, alt. 3000 m, 17 Feb. 1979, *C. Luer, J. Luer & A. Hirtz 3987* (SEL); road cut above Pilaló, alt. 3300 m, 26 Feb. 1986, *C. Luer, J. Luer & A. Embree 12041* (MO).
Napo: Papallacta, eastern slope of the Andes, 1857, *W. Jameson s.n.* (holotype of *S. apiculata* Lindl.: K); between Baeza and Papallacta, alt. 2600 m, 14 Apr. 1985, *C. Luer, J. Luer, A. Hirtz & W. Flores 11275* (MO).
Tungurahua: slopes of Volcán Tungurahua, alt. 1230 hexap., May 1801, *A. Humboldt & A. Bonpland s.n.* (P); Páramo de Minza, alt 3800 m, 12 Apr. 1979, *C.W. Penland & R.H. Summers 402* (AMES, COCO); slopes of Volcán Tungurahua, alt. 3000 m, 27 Mar. 1984, *C. Luer, S. Dalström, T. Höijer & J. Kuijt 9754* (MO); Cordillera de los Llanganates, Leito, alt. 2870-3100 m, 11 Apr. 1985, *C. Luer, J. Luer, A. Hirtz & W. Flores 11132, 11133, 11147* (MO).
Chimborazo: above Chunchí, alt. 3050 m, *C. Luer, J. Luer & A. Hirtz 6087* (SEL); patch of forest above Pallatanga, alt. 2900 m, 19 Mar. 1985, *C. Luer, J. Luer, A. Hirtz & W. Flores 10654* (MO).
Bolívar: between Guaranda and Facundo Vela, alt. 2600 m, 24 Mar. 1984, *C. Luer, S. Dalström et al. 9671, 9682* (MO); between San Miguel and Chillanes, alt. 2300 m, 25 Mar. 1984, *C. Luer. S. Dalström et al. 9698, 9699* (MO); between Guaranda and Balzapamba, alt. 2000 m, 26 Mar. 1984, *C. Luer, A. Hirtz, S. Dalström, T, Höijer & J. Kuijt 9735* (MO); west of Salinas toward La Palma, alt, 3400 m, 10 Mar, 1991, *C. Luer, J. Luer, A. Hirtz et al. 14946* (MO).
Morona-Santiago: east of the pass east of Sigsig, alt. 2950 m, 15 May 1988, *C. Luer, A. Hirtz, A. Andreetta & W. Teague 13341* (K, MO).
Cañar: near El Tambo, alt. 3000 m, 16 Apr. 2001, *A. Hirtz et al. 7542* (MO).
Azuay: between Cuenca and Loja, south of Cumbe, alt. 3200 m, 5 Feb. 1977, *G. Harling, U. Eliasson & L. Andersson 15082* (GB); new road west of Zorrogucho, alt. 3250 m, 16 Mar. 1984, *C. Luer, S. Dalström, T. Höijer & J. Kuijt 9720* (MO); southwest of Cuenca, toward Zorrogucho, alt. 3000 m, 17 Mar. 1984, *C. Luer, S. Dalström, T. Höijer & J. Kuijt 9540* (MO).
El Oro: forest above Zaruma, alt. 1800 m, 23 Feb. 1986, *C. Luer, J. Luer, A. Hirtz, W. Flores & A. Embree 12026* (K, MO).
Zamora-Chinchipe: east of the pass east of Loja, alt. 2750 m, 21 Mar. 1985, *C. Luer, J. Luer. A. Hirtz & W. Flores 10712* (MO); along Río Zamora, west of Zamora, alt. 1500 m, 20 Feb. 1986, *C. Luer, J. Luer, A. Hirtz et al. 11977* (MO).
COLOMBIA: **Antioquia**: Quirama, Río Negro, alt. 2200 m, 13 July 1973, *R.E. Schultes s.n.* (COL, MO).
Cauca: Páramo de Guanacas, alt. 3000-3300 m, 21 Feb. 1884, *F.C. Lehmann 3692* (lectotype here designated for *S. citrina*: K; isolectotype: BR); lithophytic, Páramo de Guanacas, alt. 2800-3200 m, 9 Jan. 1886, *F.C. Lehmann 6039* (lectotype of *S. tenuis* here designated: K, isolectotype: LE).

Nariño: Barbacoas to Pasto, alt. 8,000 ft., 5 Oct. 1878, *F.C. Lehmann s.n.* (W); Montaña Aranda, above Pasto, alt. 9,500 ft., 10 Nov. 1878, *F.C. Lehmann s.n.* (W); mountains around Pasto, alt. 2800-3000 m, Jan. 1921, *W. Hopp 9* (holotype of *S. elegantula* destroyed at B, neotype here designated, *A. Hirtz & X. Hirtz 7542* (MO); Daza, northwest of Pasto, alt. 2800 m, Jan. 1922, *W. Hopp 151* (holotype of *S. scandens* destroyed at B, neotype here designated, *C. Luer, A. Hirtz, S. Dalström, T, Höijer & J. Kuijt 9735* (MO);
VENEZUELA: **Táchira**: below Alto de Tierra Negra, alt. ca. 2700 m, Jan. 1968, *G.C.K. Dunsterville 1042*.
PERU: **Junín**: Chanchamayo valley, alt. 1800 m, *Schunke s.n.* (holotype of *S. minuta*: AMES); same locality, alt. 1600 m, *Schunke 1668* (AMES).
HAITI: Massif du Nord, Gros-Morne, Morne Chabre, alt. 1130 m, 5 Oct. 1925, *E.L. Ekman H-5009* (holotype of *S. chabreana*: S; isotypes: AMES, K, US).
DOMINICAN REPUBLIC: Sierra de Yaroa, alt. 850 m, 28-29 Jan. 1969, *A.H. Liogier 13581* (NY), C. Luer illustr. 20117; Puerto Plata: Loma del Puerto, alt. 750 m, 18 Sept. 1969, *A.H. Liogier 15943* (NY); C. Luer illustr. 20118; same collection data, *A.H. Liogier 15947* (NY).

This common concept is variable in size both vegetatively and florally, the variations acquiring many names. It is distributed in the Neotropics, usually at high altitudes, and often blanketing road embankments. Identical specimens found on Hispaiola have been described (*Stelis chabreana* Mansf.).

The concept is usually characterized by an ascending rhizome that sometimes is repent, or sometimes more or less caespitose, probably depending on the habitat. The ramicauls are shorter than the narrow leaves they bear. The subcongested to loose, distichous raceme of tiny flowers is usually longer than the leaves. The ovate, obtuse sepals vary from less than one millimeter long (*Stelis graminea* Lindl.) to a trifle more than two millimeters long. They vary in color from white to yellow or light green, or less commonly to rose or buff. The petals are thin and single-veined with a narrowly thickened margin. The type-B lip is subquadrate with a minute, obtuse apiculum on the apical margin, that is sometimes almost absent, and a large callus fills the basal two-thirds of the lip.

406. **Stelis ramosii** Luer, sp. nov.

Ety.: Named for Jorge Ramos of Universidad del Valle, Cali, Colombia, collector of this species.

Species haec *Stelidis calolemmae* Luer & Hirtz affinis, sed habitu floribusque majoribus, sepalo dorsali quinquevenoso lateralibus quadrivenosis, et labelli callo centrali fisso differt.

Plant medium to large in size, epiphytic, caespitose; roots coarse, fleshy. Ramicauls erect, stout, 3-10 cm long, enclosed by a loose, tubular sheath from below the middle and 2-3 other sheaths at the base. **Leaf** erect, coriaceous, elliptical, subacute to obtuse, petiolate, the blade 6-9 cm long including a petiole 1-2 cm long, 2.5-3 cm wide, contracted below into the slender petiole. **Inflorescence** an erect, lax, many-flowered raceme with most flowers open simultaneously, to 20 cm long including the peduncle ca. 8 cm long, subtended by a slender spathe ca. 1.5 cm long, from an annulus below the apex of the ramicaul; floral bracts infundibular, oblique, acute, acuminate, 7-8 mm long below to 3-5 mm long toward the tip; pedicels 3 mm long; ovary 2 mm long; **sepals** widely spread, green, yellow near the border, densely purple-ciliate, the dorsal sepal ovate, obtuse, 6 mm long, 6 mm wide, 5-veined, connate to near the middle to the lateral sepals, the laterals ovate, obtuse, 5.5 mm long, 6 mm wide, 4-veined; **petals** yellow-green, transversely oblong, 2 mm long, 2.5 mm wide, 3-veined, the apex round and thickened, shallowly concave below a low, indistinct transverse callus; **lip** yellow-green, suborbicular, deeply and broadly concave, 1 mm long, 3 mm wide, 2 mm deep, the apex thin and broadly rounded, the bar with a pair of tall lamellae flanking a central glenion, the dorsum flat, finely short-pubescent, the base truncate, hinged to the base of the column; **column** semiterete, 1 mm long, 2 mm wide, the foot obsolescent, the anther and the stigma apical, the stigma bilobed.

ECUADOR: **Cotopaxi**: Sigchos, Río Escaleras, alt. 2100 m, 20 July 2003, *J. Ramos, J. Contreras, L. Ramos, A. & R. Tigse 6352* (Holotype of *S. ramosii*: CUVC; Isotype: MO), C. Luer illustr. 20948.

This species is related to *Stelis calolemma* Luer & Hirtz, but differs from the latter by a larger, robust habit, and larger flowers with a five-veined dorsal sepal. The lips are similarly deeply concave with a thin, broadly rounded margin, but instead of a conical callus of the bar as in *S. calolemma*, a pair of erect lamellae flank a prominent glenion.

407. **Stelis repens** Cogn., Symb. Antill. 6: 692, 1910.

Ety.: From the Latin *repens*, "creeping," referring to the repent habit.

Plant small, epiphytic, shortly repent with the rhizome 0.5-2 cm long between ramicauls; roots slender. Ramicauls ascending, slender, 2-3 cm long, enclosed by 2-3 tubular sheaths. **Leaf** erect, coriaceous, narrowly elliptical, subacute to acute, shortly petiolate, 2-4.5 cm long including a petiole ca. 0.5 cm long, 0.5-1 cm wide, narrowly cuneate below into the petiole. **Inflorescence** an erect, secund, subdensely several-flowered raceme with most flowers open simultaneously, 3-4 cm long, including the peduncle ca. 1.5 cm long, subtended by a spathe 3 mm long, from below the apex of the ramicaul; floral bracts oblique, tubular, 1 mm long; pedicels 1 mm long; ovary 0.5 mm long; **sepals** expanded, pale green, glabrous, free nearly to the base, minutely apiculate, the dorsal sepal ovate, subacute. 1.5 mm long, 1 mm wide, 3-veined, the lateral sepals antrorse, ovate, oblique, acute, 1.75 mm long, 0.75 mm wide; **petals** light green, obcuneate, shallowly concave, 0.4 mm long, 0.4 mm wide, the apex broadly truncate and thickened on the margin; **lip** light green, thick, trilobed, 0.4 mm long, 0.25 mm wide, 0.2 mm deep, the apical lobe narrowly triangular, narrowly obtuse, the lateral lobe-like angles triangular and antrorse, narrowly rounded, the disc thickly callus, cellular-papular above the base, the base truncate, hinged to the base of the column; **column** stout, 0.4 mm long, 0.4 mm broad, the foot obsolescent, the anther apical with confluent stigmaic lobes.

DOMINICAN REPUBLIC: **La Vega**: near Constanza, alt. 1450 m, June 1910, *H. von Tüerckheim 3329* (Holotype of *S. repens*: BR; Isotypes: AMES, K, US); near Farabacoa, alt. 1250 m, June 1912, *M. Fuertes 1673* (AMES); Monte Cristi: Monción, Lagunas de Cenobi, alt. 1200 m, 4 June 1929, *E.L. Ekman 12738* (AMES, S, US). Puerto Plata: Loma del Puerto, alt. 750 m, 18 Sept. 1969, *A.H. Liogier 15945* (NY, US). Santiago: Pico de Igua, alt. 1490 m, 15 Aug. 1947, *J. Jiménez 1252* (US). Jarabacoa: Loma de la Sal, alt. 1100-1250 m, *A.H. Liogier 11423* (AMES, NY, US); "8" La Virgin, *D. Dod 1039*, *C. Luer 12273* (MO).
HAITI: Massif du Nord, Morne Colombeau, alt. 900 m, 20 June 1925, *E. L. Ekman H-4351* (AMES, K, S, US).
ECUADOR: **Pastaza**: near Mera, alt. ca. 1000 m, Mar. 1976, *C. Luer, J. Luer & P. Taylor 967* (SEL).
Imbabura: Cayambe, Lago San Marcos, alt. 11,200 ft., 28 Nov. 1961, *P.C.D. Cazalet & T.D. Pennington 5375* (AMES, K).
Zamora-Chinchipe: Estación Cientifica San Francisco, between Loja and Zamora, alt. 2230 m, 5 June 2004, *F. Werner 995* (LOJA, MO, QCNE).

This little species is uncommon but widely distributed on the island of Hispaniola, and in the Andes of Ecuador. In stark contrast to other species of section *Stelis*, the three sepals of this long-repent species are free, and mostly antrose in the natural position. The petals and lip of plants from both areas of distribution are similar. The tiny lip, scarcely more than a half millimeter long, is three-lobed, a rare adaptation of type-B, with the middle lobe an elongated triangular projection from between antrorse lateral lobes near the middle.

408. **Stelis rostrata** Luer, sp. nov.

Ety.: From the Latin *rostratus*, "beaked," referring to the column.

Planta parva caespitosa, racemo gracili multifloro folio elliptico acuto longiore, floribus minutis, sepalis obtusis intus pusticulatis lateralibus antrorsis, petalis uninervis, labello subplano obtuso infra medium unicalloso et column rostrata distinguitur.

Plant small, epiphytic, caespitose; roots capillary. Ramicauls erect, stout, 2-2.5 cm long, enclosed by a loose, tubular sheath and 2-3 other sheaths at the base. **Leaf** erect, coriaceous, elliptical, acute, subpetiolate, the blade 5-6 cm long, 1-1.3 cm wide, contracted below into the subpetiolate base. **Inflorescence** an erect, congested, many-flowered raceme of minute flowers, to 12 cm long including the peduncle ca. 4 cm long, subtended by a slender spathe ca. 3 mm long, from an annulus below the apex of the ramicaul within the sheath; floral bracts infundibular, oblique, acute, 1 mm long; pedicels 1.5 mm long; ovary 1 mm long; **sepals** whitish, suffused with brownish purple externally *fide* the collector, fleshy, convex, densely pusticulate within, the dorsal sepal broadly ovate, obtuse, 1.6 mm long, 1.6 mm wide, 3-veined, connate basally, the laterals antrorse, ovate, obtuse, 1.6 mm long, 1.2 mm wide, faintly 3-veined; **petals** membranous, transversely obovate, 0.3 mm long, 0.5 mm wide, 1-veined, the apex broadly rounded; **lip** obovate, obtuse, shallowly concave above the middle, with a rounded callus below the middle, scarcely 0.1 mm long, 0.3 mm wide, 0.75 mm deep, the apex obtuse, the base truncate, hinged to the base of the column; **column** semiterete, 0.6 mm long, 0.5 mm wide, the apex prominently beaked, the anther apical with the stigmatic lobes in apposition.

ECUADOR: **Guayas**: hills above Hacienda La Elvira, ca. 5 km west of Bucay, alt. ca. 500 m, 6 July 1979, *B. Løjtnant & U. Molau 15605* (Holotype of *S. rostrata*: GB; Isotype: AAU), C. Luer illustr. 21296, 20948.

This species is native to the hot, lowland, banana country of western Ecuador. It is characterized by a caespitose habit with acute, elliptical leaves and a longer densely flowered raceme of numerous minute flowers. The tiny sepals are fleshy and pusticulate within, with the lateral sepals held forward. The petals are single-veined. The lip is shallowly obovate, modified type-B, with the depth (what first appears to be the length) only 0.75 mm. The column is proportionately large with am imposing beaklike apex. The stigmatic lobes are contiguous below the clinandrium.

409. **Stelis satyrella** Luer & Hirtz, sp. nov.

Ety.: the diminutive of a satyr, a Greek mythological woodland diety.

Species haec *Stelidis ramulosae* Luer & Dalström similis, sed racemo stricto folio breviore, sepalis ad apicem breviter acutis, petalis transverse ovatis late obtusis et labello ovoideo profunde concavo differt.

Plant medium in size, epiphytic, scandent; roots slender. Ramicauls erect to suberect, slender to stout, prolific, to 11 cm long below to 2 cm long above, enclosed by a long, tubular sheath and 1-2 shorter sheaths at the base. **Leaf** erect, coriaceous, elliptical, obtuse, petiolate, the blade 2-4 cm long, 1 cm wide, cuneate below into the petiole, the petiole slender, 0.8-1.5 cm long. **Inflorescence** an erect, distichous, strict, congested, more or less simultaneously several-flowered raceme, 2.5 cm long, borne by the peduncle 2.5 cm long, from an annulus below the apex of the ramicaul; floral bracts oblique, acute, acuminate, 2 mm long; pedicels 1 mm long; ovary swollen to 2.5 mm long in the present specimen; **sepals** white, glabrous, broadly ovate, obtuse, shortly acute and thickened at the tip, the dorsal sepal 3 mm long, 2.5 mm wide, 3-veined, the lateral sepals oblique, 2.5 mm long, 2 mm wide, 3-veined; **petals** transversely ovate, shallowly concave, the apex broadly obtuse with a thin margin, and with a transverse callus, 0.75 mm long, 1.25 mm wide, 3-veined; **lip** ovoid, subquadrate, deeply concave with the margind thin, round at the apex, 0.75 mm long, 0.9 mm wide, 0.75 mm deep, the bar deeply cleft, the dorsum shallowly concave with a small, transverse callus above the base, the base truncate, hinged to the base of the column; **column** stout, 0.75 mm long, 0.75 mm wide, the foot obsolescent, the anther and the bilobed stigma apical.

ECUADOR: **Imbabura**: wet forest south of Lita, between Santa Rosa and Cachabi, alt. 1250 m, 19 Jan. 1987, *C. Luer, J. Luer, A. Hirtz, C.H. Dodson et al. 12438* (Holotype of *S. satyrella*: MO).

This prolific species from northwestern Ecuador is similar in habit to *Stelis ramulosa* Luer & Dalström from the eastern slopes of the Andes of southern Ecuador. The racemes *S. satyrella* are strict and do not surpass the leaf, but the flowers are similar with closed sepals. The present specimen is with swollen ovaries, but the floral parts appear fresh. The petals are proportionately wider with a transverse callus. Instead of flat with a very short length from back to front, the lip is thickly quadrate and deeply concave with thin margins, and the bar is deeply cleft.

410. **Stelis scansor** Rchb.f., Bonplandia 3: 241, 1855.

Ety.: From the Latin *scansor*, "a climber," referring to the scandent habit.

Syn.: *Stelis prorepens* Schltr., Repert. Spec. Nov. Regni Veg. Beih. 7: 92, 1920.
Ety.: From the Latin *prorepens*, "repent," referring to the scandent habit.

Syn.: *Stelis trianae* Schltr., Repert. Spec. Nov. Regni Veg. Beih. 7: 94, 1920, as *trianaei*.
Ety.: Named for J.J. Triana who collected this species.

Syn.: *Stelis vagans* Ames, Sched. Orchid. 1: 8, 1922.
Ety.: From the Latin *vagans*, "wandering," in allusion to the scandent habit.

Plant small, epiphytic, scandent, long-repent, the rhizome stout, 1-3 cm between ramicauls; roots slender. Ramicauls ascending, slender, 2-4 cm long, enclosed by 2 tubular sheaths. **Leaf** erect, coriaceous, narrowly elliptical, subacute to acute, 3-4 cm long including the petiole 0.5-0.7 cm long, 0.7-1 cm wide, narrowly cuneate below into the petiole. **Inflorescence** 1-2 erect, congested, distichous,

many-flowered, racemes with many flowers open simultaneously, 2-4 cm long including the peduncle ca. 1 cm long, from an annulus below the apex of the ramicaul; floral bracts oblique, acute, 1.5-2 mm long; pedicels 0.5 mm long; ovary 0.75 mm long; **sepals** yellow, glabrous externally, cellular-papular within, elliptical ovate, subacute or obtuse, connate basally, the dorsal sepal 1.6 mm long, 1.2 mm wide, 3-veined, the lateral sepals 1.6 mm long, 1.1 mm wide, 3-veined; **petals** yellow, transversely elliptical, 0.6 mm long, 0.9 mm wide, shallowly concave, the apex broadly rounded with the margin thickened, the base truncate; **lip** yellow, thick, subquadrate, 0.4 mm long, 0.3 mm wide, 0.3 mm deep, the apex broadly rounded, concave within anterior to a high, thick, central callus with a glenion, the base truncate, hinged to the base of the column; **column** stout, 0.5 mm long, 0.6 mm wide, the foot obsolescent, the anther and the stigma apical, the stigma bilobed.

COLOMBIA: **Nariño**: in woods near Pasto, Sept. 1845, *W. Jameson 448* (Holotype of *S. scansor*: W; Isotypes: AMES, BM, BR, G, K, LE); west slopes of the cordillera near Pasto, alt. 10,000 ft., June 13, 1878, *F.C. Lehmann s.n.* (K); above La Laguna bei Pasto, 18 Oct. 1878, *F.C. Lehmann s.n.* (W).
Cauca: above Coconuco, alt. 2800-3000 m, 6 Feb. 1884, *F.C. Lehmann 3520* (holotype of *S. prorepens*: K; isotype: BM, BR); headwaters of Río Lopez, Río Palo basin, Tierra Adentro, alt. 2500-3000 m, Jan. 1906, *H. Pittier 1061* (holotype of *S. vagans*: US).
Without collection data, *J.J. Triana 566* (holotype of *S. trianae*: COL?, W?).
ECUADOR: **Imbabura**: between Río San Geronimo and Naranjito east of Volcán Cayambe, alt. 9,000 ft., 4 May 1944, *W.B. Drew E-191* (AMES).
Napo: between Papallacta and Cuyujúa, alt. 2850 m, 26 Mar. 1979, *B. Løjtnant & U. Molau 11371* (AAU, GB); above Papallacta, alt. 2700 m, 15 May 1981, *C. Luer, J. Luer & A. Hirtz 6241* (SEL).
Cañar: between Taday and Azogues, alt. 3300 m, 4 Feb. 1977, *G. Harling, U. Eliasson & L. Andersson 15006* (AMES, GB).
Azuay: between Sayausid and Cajas, alt. 3000 m, 15 June 1979, *B. Løjtnant, A. & U. Molau 14835* (AAU, GB).

This species is relatively frequent and widely distributed in the Andes from Colombia and Ecuador. It is characterized by a branching, repent habit which produces great, tangled masses. The elliptical leaves more or less equal the ramicauls in length. The crowded-flowered racemes are as long as or a little longer than the leaf. The sepals are ovate; the petals are transversely flabellate; and the very small type-B lip is subquadrate with the central callus thick with a glenion.

242., **242a., 242b. Stelis schomburgkii** Fawc. & Rendle, J. Bot. 48: 108, 1910.

Ety.: Named for Richard Schomburgk who collected the species.

Syn.: *Stelis cryptopetala* Luer & Hirtz, Monogr. Syst. Bot. Missouri Bot. Gard. 112: 26, 2007.
Ety.: From the Greek *cryptopetalus*, "hidden petals," referring to the out-of-sight petals.

Plant medium in size, epiphytic, densely ascending-caespitose; roots slender. Ramicauls erect, slender, 4-10 cm long, enclosed by a tubular sheath from below the middle and 2-3 sheaths at the base. **Leaf** erect, coriaceous, narrowly elliptical, subacute, 6-13 cm long including an indistinct petiole 1-2 cm long, 1-1.5 cm wide, narrowed below into the indistinctly petiolate base. **Inflorescence** an erect, congested, distichous, many-flowered raceme with most flowers open simultaneously, 7-23 cm long including the peduncle 1-6 cm long, subtended by a slender spathe 6-15 mm long, from an annulus below the apex of the ramicaul; floral bracts oblique, acute, 1.5-2 mm long; pedicels 1-1.5 mm long; ovary 1 mm long; flowers yellow, **sepals** similar, glabrous to variously pubescent, connate basally, variously elliptical-ovate, subacute, sometimes apiculate, 1.5-3 mm long, 1.5-2 mm wide, 3-veined, the lateral sepals partially held forward; **petals** transversely obovate, shallowly concave, without a transverse callus, 0.5 mm long, 0.75-1 mm wide, 3-veined, the apex broadly rounded to truncate with the margin thickened; **lip** thick, suboblong, 0.6-0.8 mm long, 0.6-0.8 mm wide, 0.3-0.6 mm deep, concave anteriorly with the apex subtruncate, sharply short-apiculate, the bar with a cleft glenion, the dorsum with low calli, densely short-pubescent at the base, the base broadly truncate, hinged to the base of the column; **column** stout, 0.6 mm long, 0.8 mm wide, the foot obsolescent, the anther and the stigma apical, the stigma transversely bilobed.

GUYANA: Roraima expedition, *R. Schomburgk 1025* (Holotype of *S. schomburgkii*: K), C. Luer illustr. 20933.
VENEZUELA: **Bolívar**: Auyantepui, alt. 6,000 ft., Mar. 1964, *G.C.K. Dunsterville 874*
COLOMBIA: certainly present, but none seen.
ECUADOR: **Carchi**: between Tulcán and Maldonado, alt. 10,400 ft., July 1991, *F L Stevenson 93-0509-3* (MO), C. Luer illustr. 20466.

Sucumbíos: between Tulcán and La Bonita, alt. 3000 m, *A. Hirtz 9041* (MO).
Imbabura: forest between Carolina and Buenos Aires, alt. 1950 m, 17 Jan. 1987, *C. Luer, J. Luer & A. Hirtz 12348, 12351* (MO).
Pichincha: Río Saloya, north of Volcán Atacaso, alt. 1830-2430 m, 22 Apr. 1943, *J.A. Steyermark 52595* (AMES); between San Juan and Chiriboga, alt. 2050 m, 11 Jan. 1989, *C. Luer, J. Luer, A. Jesup & P. Jesup 13848* (MO).
Napo: between Baeza and Papallacta, alt. 2800 m, 5 June 1973, *L. Holm-Nielsen, S. Jeppesen, B. Løjtnant & B. Ølgaard 6900* (AAU, AMES); Parque Nacional Sumaco, Galeras, alt. 1600 m, 6 Apr. 1996, *D. Neill & H. Vargas 10561* (QCNE).
Morona-Santiago: between Limón and Gualaceo, alt. 1900 m, 22 Mar. 1974, *G. Harling & L. Andersson 12747* (GB); beyond Sigsig, alt. 3000 m, 28 July 2004, *A. Hirtz et al. 20893* (holotype of *S. cryptopetala*: MO).
Cañar: terrestrial in dry scrub, between Azogues and Pindilig, alt. 3000 m, 8 June 1979, *B. Løjtnant, A. & U. Molau 14239* (AAU; GB), C. Luer illustr. 20491.
Azuay: southeast of Sigsig, alt. 2800 m, 13 Jan. 1989, *C. Luer, J. Luer, A. Hirtz, S. Ortega, A. & P. Jesup 13862* (MO).
Loja: west of the pass to Zamora, alt. 2400-2700 m, 17 June 1979, *B. Løjtnant, A. & U. Molau 15039* (AAU); road to TV tower east of Yangana, alt. 2500 m, 22 Mar. 1985, *C. Luer, J. Luer, A. Hirtz & W. Flores 10807, 10810, 10818* (MO); Cerro Toledo, south of Yangana, alt. 2500 m, 7 Apr. 1985. *G. Harling & L. Andersson 23838* (AMES, GB, QCA).
Zamora-Chinchipe: new road between Loja and Zamora, alt. 2250 m, 28 May 1988, *C. Luer, A. Hirtz et al. 13581, 13603* (MO).

Although described from Guyana, this variable species is widely distributed in the Andes. The leaves of some collections from Ecuador are often wider, the flowers are often larger, and the racemes are often longer. The leaves of *Stelis schomburgkii* are narrowly elliptical and about as long as the ramicaul; the slender raceme varies from about as long as, to somewhat longer than the leaves, the sepals are variously ovate, sometimes sparsely pubescent as in Fig. 242a. The lateral sepals ovare more or less held forward; and the petals are thin, three-veined, and usually shorter than the lip. The lip is type-B, rectangular, more or less longer than wide, and the more or less transverse apex is shortly apiculate. Two marked variations of the lip are illustrated in Fig. 242a. and Fig. 242b. The variation described as *S. cryptopetala* in Fig. 242. in Part One is most similar to the type.

Stelis schomburgkii has been identified as *Stelis aprica* Lindl., which was described from Brazil, and uncommonly found in the Andes. The two species are similar both vegetatively and florally, but *S. aprica* is distinguished by single-veined petals and a much larger, triangular middle lobule of the lip instead of a short apiculum.

411. **Stelis serra** Lindl., Ann. & Mag. Nat. Hist., ser. 1, 12: 397, 1843.

Ety.: From the Latin *serra*, "a saw," referring to the raceme with prominent floral bracts.

Plant small, normally epiphytic, densely caespitose; roots slender. Ramicauls fasciculate, erect, slender, 2-4 cm long, enclosed by 2-3 tubular sheaths. **Leaf** erect, coriaceous, narrowly elliptical, subacute to obtuse, 2.5-4 cm long including an indistinct petiole less than 1 cm long, 0.7-1 cm wide, narrowly cuneate below into the petiole. **Inflorescence** an erect, distichous, many-flowered raceme, with several flowers open simultaneously, 5-10 cm long including the peduncle 2.5-3.5 cm long, from an annulus below the apex of the ramicaul; floral bracts conspicuous, oblique, acute, 7 mm long below to 5 mm long above, imbricating above, enclosing the pedicels; pedicels 1.5 mm long; ovary 1.5 mm long, protruding from the side of the floral bract; **sepals** cream-colored, similar, minutely ciliate-pubescent, connate basally into a cup, ovate, obtuse, the dorsal sepal 3.5 mm long, 3 mm wide, 3-veined, the lateral sepals oblique, 3 mm long, 3 mm wide, 3-veined; **petals** yellow, transversely ovate, broadly rounded at the apex with a slightly thickened margin, shallowly concave, 1.6 mm long, 1.6 mm wide, 3-veined; **lip** purple, oblong, 1 mm long, 1.75 mm wide, 2 mm deep, concave above the middle with the apex broadly rounded, the bar below the middle, convex on either side of a large, concave glenion, the base (the dorsum in this case) broadly truncate, minutely pubescent, hinged to the base of the column; **column** stout, 1.5 mm long and wide, the foot obsolescent, the anther and the bilobed stigma apical.

PERU: **San Martín**: Chachapoyas, 1836, *Mathews s.n.* (Holotype of *S. serra*: K).
Cuzco: Cerro de Cusilluyoc, Pillahuata, alt. 2700-3200 m, 3 May 1925, *F.W. Pennell 13919* (AMES, F, NY).
ECUADOR: **Carchi**: terrestrial on road cut west of the pass between Tulcán and Maldonado, alt. 3400 m, 16 Mar. 1991, *C. Luer, J. Luer, J. del Hierro, A. & X. Hirtz 15064* (MO).
Napo: Cerro Sumaco, alt. 3100-3300 m, 27 Apr. 1979, *B. Løjtnant & U. Molau 12910* (AAU, GB).
Tungurahua: Leito, alt. 3000 m, 12 Oct. 1984, *A. Hirtz 2004* (MO).
Zamora-Chinchipe: east of the pass between Loja and Zamora, alt. 2700 m, 14 July 1983, *J. Bohlin & M. Bohlin 940* (AMES, GB).

This species is known from several widely separated areas in Ecuador and Peru. It is characterized by a small habit, fasciculated ramicauls, and a narrowly elliptical leaf that is surpassed by a raceme with conspicuous, alternating, floral bracts. The pedicels are far shorter than the floral bracts, but the flower is borne from one side. The sepals are broadly ovate and minutely ciliate-pubescent, and the petals are broadly rounded. The type-B lip is concave above the middle with a broadly rounded apex, and a thick, pubescent base.

412., 412a. Stelis spathulata Poepp. & Endl., Nov. Gen. Sp. 1: 46, 1836.

Ety.: From the Latin *spathulatus*, "spathulate," referring to the leaves.

Syn.: *Stelis tricuspis* Schltr., Repert. Spec. Nov. Regni Veg. Beih. 3: 276, 1907.
Ety.: From the Latin *tricuspis*, "sharply three-toothed," referring to the labellum.

Plant small to medium in size, epiphytic, densely caespitose-fasciculate; roots slender. Ramicauls fasciculate, erect, slender, 1-4 cm long, enclosed by 2-3 tubular sheaths. **Leaf** erect, coriaceous, narrowly obovate to narrowly elliptical, obtuse to rounded at the apex, 2-7 cm long including an indistinct petiole 1-2 cm long, 0.4-0.9 cm wide, narrowly cuneate below into the petiolate base. **Inflorescence** an erect, dense, distichous, many-flowered raceme, with many flowers open simultaneously, 5-8 cm long including the peduncle less than 1 cm long, from an annulus below the apex of the ramicaul; floral bracts infundibular, oblique, acute, 3-3.5 mm long, imbricating, enclosing the pedicels, ovaries and much of the flower; pedicels 0.75 mm long; ovary 1 mm long; **sepals** similar, greenish white to pale yellow-green, glabrous, more or less cellular-glandular near the apices, connate basally, ovate, acute, 1.5 mm long, 1 mm wide, 3-veined, the lateral sepals parallel, oblique; **petals** greenish white, cuneate-obovate, shallowly concave, 0.5 mm long, 0.4 mm wide, 1-veined, the apex truncate, thickened and cellular-glandular externally; **lip** greenish white, ovoid-trilobed, 0.6 mm long, 0.5 mm wide, 0.3 mm deep, the lateral margins obtusely angled, the apex abruptly narrowly triangular, the disc with a pair of slightly convex, cellular-glandular, callous plates with rounded, apical margins, concave between on the anterior surface, the base broadly truncate, hinged to the base of the column; **column** stout, 0.5 mm long, the foot obsolescent, the anther and the bilobed stigma apical.

PERU: **Huanuco**: Cuchero, near Pampayaco, *E. Poeppig s.n.* (Holotype of *S. spathulata*: W); near Cassapi, *Mathews 1912* (BR, K, LE, W).
ECUADOR: **Carchi**: between Maldonado and Chical, alt. 1500 m, 15 Jan. 1992, *C. Luer. J. Luer, A. & P. Jesup 16023* (MO); above Maldonado toward Río La Plata, alt. 2200 m, 11 Jan. 1993, *A. Hirtz 5868* (MO).
Imbabura: Los Cedros Reserva, alt. 1700 m, 21 Jan. 1993, *S. Dalström, T. Höijer & H. Wanntorp 1712* (MO).
Pichincha: road to silver mine above Toachi, alt. 1500 m, 14 Mar. 1982, *C. Luer, A. Hirtz & S. Dalström 7370* (SEL).
Cotopaxi: Macuchi, between Quevedo and Latacunga, alt. 1600 m, 1 May 1968, *G. Harling, G. Storm & B. Ström 8829* (GB); Río Pilalo between Quevedo and Latacunga, alt. 1200 m, 7 Apr. 1973, *L. Holm-Nielsen, S. Jeppesen, B. Løjtnant & B. Ølgaard 3117* (AAU, SEL).
Pastaza: Shell-Mera, alt. 1000 m, 10 Mar. 1956, *E. Asplund 19713* (AMES, S); north of Puyo, alt. 1000 m, 12 Apr. 1985, *C. Luer, J. Luer, A. Hirtz & W. Flores 11211* (MO).
Guayas: Hda. La Elvira, west of Bucay, alt. ca. 500 m, 6 July 1979, *B. Løjtnant & U. Molau 15598* (AAU).
Morona-Santiago: near Chigüinda, cultivated by Ecuagenera, 17 Apr. 2001, *A. Hirtz 7697* (MO).
El Oro: forest above Zaruma, alt. 1500 m, 6 Mar. 1982, *C. Luer, A. Andreetta & S. Dalström 7203* (SEL); forest south of Piñas, alt. 950 m, 20 Mar. 1985, *C. Luer, J. Luer, A. Hirtz & W. Flores 10666* (MO).

VENEZUELA: **Dist. Fed.**: "Caracas," 1842, *J. Linden 632* (G). **Mérida**: lithophytic along Río Chama, Aug. 1842, *J. Linden 638* (G, K, W). **Lara**: Las Goteras above Río Claro, alt. 1540 m, Aug. 1970, *G.C.K. Dunsterville 1146*.
COSTA RICA: : near La Uruca, July 1888, *H. Pittier 949* (holotype of *S. tricuspis* destroyed at B; lectotype: US; isolectotypes: AMES, CR, US). **Alajuela**: San Pedro de San Ramón, alt. 1075 m, Nov. 1921, *A.M. Brenes 171* (AMES); Alfaro Ruiz, Zarcero, alt. 1575 m, 4 Nov. 1938, *A. Smith H-1320* (AMES); southeast of Cariblanco on road to Virgen de Socorro, alt. 820 m, 1 Nov. 1990, *S. Ingram & K. Ferrell 684* (AMES, CR, F, K, MO, SEL), C. Luer illustr. 17361.
Cartago: El Muñeco, Río Navarro, alt. 1400-1500 m, 6-7 Mar. 1926, *P.C. Standley 51164, 51297, 51555, 51665, 51708, 51717, 51724* (AMES); Cordillera de Talamanca, Panamerican highway, alt. 2650 m, 26 Aug. 1961, *C. Weber 6094* (AMES); Tapantí, Quebrada Casa Blanca, alt. 1350 m, 25 Nov. 1984, *M. Grayum 4580* (CR, MO).
Heredia: San Geronimo, 20 Sept. 1920, *C. Wercklé 40* (AMES); Yerba Buena, northeast of San Isidro, alt. 2000 m, 22 Feb. 1926, *P.C. Standley 49167* (AMES).
Limón: Cantón Pococí, west of Quebrada Gonzalez, alt. 630-780 m, 11 Nov. 1990, *S. Ingram & K. Ferrell 702* (CR, MO, SEL).
San José: La Palma, alt. 1600 m, 17 Mar. 1924, *P.C. Standly 33213* (AMES); La Hondura, alt. 1300-1700 m, 2-4 Mar. 1924, *P.C. Standley 36152, 36206, 36282, 36317, 36328, 36367, 36377, 36400, 36431, 36447, 36455, 36467, 37874, 37906, 39835, 37959, 37568, 37920, 37944, 37974* (AMES); between Las Nubes and San Isidro de Coronado, alt. 1420-1800 m, 22 Mar. 1924, *P.C. Standley 38884* (AMES); Río Clara Valley, below La Palma NE of San Jeronimo, alt. 1000-1200 m, 23 Oct. 1975, *W. Burger, R. Baker & J. Utley 9370* (CR, F).

This species is relatively common in its wide distribution from Costa Rica through much of the Andes. Varying in size vegetatively, it is characterized by the densely fasciculated, more or less ascending ramicauls with narrowly obovate to elliptical leaves and a slender raceme often slightly longer. The tiny flowers are subtended by proportionately long, imbricating floral bracts that contain the pedicel, ovary and lower half of the flowers. The sepals are acute with the laterals more or less parallel. The petals are single-veined and truncate at the thickened apex. The type-B lip is tridentate with a pointed middle lobe. The apex of the modified type-B lip of *Stelis hymenantha* Schltr. is merely an acute triangle. *Stelis hymenantha* Schltr. differs from *S. spathulata* in shorter floral bracts that do not engulf the sepals. Fig. 412a. is an extreme in size.

413. **Stelis striolata** Lindl., Folia Orchid. *Stelis* 4(26), 1858.

Ety.: From the Latin *striolatus*, "striolate," referring to fine, linear stripes seen on the dry flowers.

Plant medium to large, epiphytic, caespitose; roots slender. Ramicauls erect, stout, 8-17 cm long, with a short, tubular sheath near the middle and 2-3 sheaths at the thickened base. **Leaf** erect, coriaceous, elliptical-ovate, subacute to obtuse, petiolate, 8-11 cm long including the petiole 1-1.5 cm long, the blade 1.5-2 cm wide, cuneate below into the petiole. **Inflorescence** 1-4 erect, strict, distichous, densely many-flowered racemes with most flowers open simultaneously, 8-11 cm long, flowering to the base, with a spathe 1-1.5 cm long, at an annulus below the apex of the ramicaul; floral bracts oblique, obtuse, 1.5-2 mm long; pedicels 1 mm long; ovary 1 mm long; flowers strongly scented; **sepals** yellow, glabrous, ovate, obtuse, connate basally, the dorsal sepal convex, 2.5 mm long, 2 mm wide, 3-veined, the lateral sepals 2 mm long, 2 mm wide, 3-veined; **petals** purple, transversely oblong, shallowly concave, 0.6 mm long, 1 mm wide, 3-veined, with the obtuse margin thickened and flattened on the edge; **lip** purple, triangular-subquadrate, 0.6 mm long, 0.8 mm wide, 0.3 mm deep, the anterior surface concave with the apex broadly obtuse, the bar with a prominent glenion, the dorsum with a transverse callus above the base, microscopically pubescent, the base truncate, hinged to the base of the column; **column** stout, 0.8 mm long, 0.8 mm wide, the foot obsolescent, the anther and the bilobed stigma apical.

ECUADOR: **Pichincha**: "western Andes on trees," 1857, *W. Jameson s.n.* (Holotype of *S. striolata*: K); Palmitopamba, northwest of Nanegal, alt. 1300 m, 23 Jan. 1974, *G. Harling & L. Andersson 11558* (GB); near Pasachoa, south of Quito, alt. 2900 m, 2 Feb. 1978, *C. Luer J. Luer & A. Hirtz 2411* (SEL); between San Juan and Chiriboga, alt. 2200 m, 28 May 1988, *C. Luer & A. Hirtz 13704* (MO); above Tandapi, alt. 1500 m, 28 May 1988, *C. Luer & A. Hirtz 13727* (MO).
Cotopaxi: Tenefuerte, alt. 850-1000 m, 24 July 1964, *C. Dodson, A. Gentry, et al. 4390* (MO).
El Oro: west of Piñas toward Santa Rosa, alt. 850 m, 8 Oct. 1979, *C.H. Dodson & A. Gentry 9077* (QCA, SEL).

Azuay: between El Progresso and Saraguro, alt. ca. 3000 m, 4 Aug. 1975, *C. Luer, G. Luer & S. Wilhelm 366* (SEL); southeast of Jima, toward San Miguel de Cuyes, alt. 3000 m, 27 Apr. 1985, *G. Harling & L. Andersson 24705* (GB).
Loja: between Loja and Catacocha, south of Chinches, alt. 2200 m, 9 Feb. 1977, *G. Harling, U. Eliasson & L. Andersson 15250* (GB); terrestrial near Saraguro, alt. ca. 2000 m, 5 Mar. 1977, *C. Luer, J. Luer & K. Cordoba 1531* (MO); trail to Manú, west of Saraguro, alt. 2100-2600 m, 21 Feb. 1988, *U. Molau & B. Eriksen 3128* (GB); west of pass west of Catamayo, alt. 2100 m, 26 Jan. 1992, *C. Luer, J. Luer, A. Hirtz, A. & P. Jesup 16171* (MO).
Zamora-Chinchipe: between Loja and Zamora, alt. 2500 m, 11 Feb. 1978, *C. Luer, J. Luer & M. Portilla 2538* (SEL).

This species of westcentral Ecuador is distinguished by the large, densely caespitose habit with ramicauls longer than the narrowly ovate, petiolate leaves. A few very congested racemes of small flowers more or less equal the leaf in length. The sepals are glabrous with the laterals more or less held forward. The petals are three-veined and the lip is type-A. In the dry state, the shriveled flowers are dark brown with the linear veins slightly elevated and yellow, hence "striolate," which Lindley chose for the specific name.

414. Stelis superbiens Lindl., Folia Orchid. *Stelis* 8(57), 1858.

Ety.: From the Latin *superbiens*, "superb," referring to the fine qualities of the species.

Syn.: *Stelis leucopogon* Rchb.f., Beitr. Orchid.-K. C. Amer. 95, 1866.
Ety.: From the Greek *leucopogon*, "a white beard," referring to the white pubescence.

Syn.: *Stelis koehleri* Schltr., Repert. Spec. Nov. Regni Veg. 10: 386, 1912.
Ety.: Named for a Herr Köhler who collected the species.

Syn.: *Stelis cascajalensis* Ames, Sched. Orchid. 4: 11, 1923.
Ety.: Named for the community of Cascajal, near where the species was collected.

Syn.: *Stelis eximia* Ames, Sched. Orchid. 6: 54, 1923.
Ety.: From the Latin *eximius*, "uncommon," referring to its occurrence.

Plant medium to large in size, epiphytic, caespitose; roots slender. Ramicauls erect, stout, 7-17 cm long, enclosed by a tubular sheath near the middle and 2-3 others at the base. **Leaf** erect, thickly coriaceous, elliptical, subacute to obtuse, 10-16 cm long including the petiole 1-2 cm long, the blade 3-4 cm wide, cuneate below into the petiole. **Inflorescence** an erect, subdense, distichous, subsecund, many-flowered raceme with several to many flowers open simultaneously, 15-30 cm long including the peduncle 5-10 cm long, with a few bracts, subtended by a spathe 1-2 cm long, from an annulus below the apex of the ramicaul; floral bracts oblique, acute, 3-5 mm long; pedicels 3-4 mm long; ovary 5-6 mm long; **sepals** expanded, pale yellow, suffused with purple, or purple, glabrous externally, glabrous or cellular-pubescent within, connate to near the middle, transversely ovate, obtuse, the dorsal sepal 5-10 mm long, 6-10 mm wide, 5- to 7-veined, the lateral sepals 5-10 mm long, 6-10 mm wide, 5- to 7-veined; **petals** yellow or purple, transversely cuneate-obovate, shallowly concave within a broad, thickened margin, 1-1.5 mm long, 1.6-2.6 mm wide, the apex broadly rounded; **lip** yellow or purple, thick, transversely subquadrate, 0.6 mm long, 1.5 mm wide, 1 mm deep, shallowly concave inside the apical margin, the margin thin, with a minute, acute apiculum, the disc transversely callous, the bar curved with a long, narrow glenion, the base broadly truncate, hinged to the base of the column; **column** stout, 1 mm long, 1.5 mm wide, the foot obsolescent, the anther and bilobed stigma apical.

Selected representative collections from many:
COLOMBIA: "New Grenada," La Garda, loose stones, *Purdie* (Holotype of *S. superbiens*: K; Isotype: AMES).
Cauca: Cajamania, alt. 1600 m, 11 Nov. 1883, *F.C. Lehmann 3346* (AMES).
ECUADOR: **Carchi**: between Tulcán and El Carmelo, alt. 2050-2500 m, 2-4 Apr. 1984, *C. Luer, S. Dalström & T. Höijer 9894, 9920* (MO).
Sucumbios: above La Bonita, alt. 2300 m, 15 Mar. 1996, *S. Dalström, S. Ingram & K. Ferrell-Ingram 2162* (MO).
Pichincha: Palmitopamba, north of Nanegal, alt. 1300 m, 23 Jan. 1974, *G. Harling & L. Andersson 11527* (AMES, GB).
Manabí: Montecriste, alt. ca. 600 m, flowered in cultivation, *C. Luer 1473* (SEL).
Napo: Quito-Baeza road, between Cuyaja and Baeza, alt. 2350 m, 28 Mar. 1979, *B. Løjtnant & U. Molau, 11441* (AAU); Cosanga, between Baeza and Tena, alt. 1800 m, 4 Feb. 1980, *G. Harling & L. Andersson 16173, 16457* (AMES, GB); between Cotundo and Coca, alt. 1100 m, 18 Nov. 1984, *A. Hirtz 2108* (MO).
Tungurahua: below Baños, alt. 1630 m, 21 Jan. 1971, *B. MacBryde 131* (AMES).
Pastaza: Mera, Isidro Ayora, alt. 1000 m, 18 Jan. 1982, *G. Harling, J. Bohlin, M. Lindström & S.*

Roth 19710 (GB); Río Anzu north of Mera, alt. 1200 m, 2 Mar. 1985, *D. Neill et al. 5918* (MO); Cordillera del Condor, east of Guismé, alt. 1650 m, 20 Jan. 1989, *C. Luer, J. Luer, A. & P. Jesup 14011* (MO).
Morona-Santiago: west of Macas toward Guamote, alt. 1500 m, 6 Feb. 1987, *C. Luer, J. Luer & A. Hirtz 12712* (MO); Cordillera del Cutucú, east of Mendez, alt. 800 m, 5 Feb. 1987, *C. Luer, J. Luer & A. Hirtz 12644* (MO); Cordillera del Condor, east of Chuchumbletza, alt. 1750 m, 21 May 1988, *C. Luer, A. Hirtz et al. 13572* (MO).
Loja: between Zaruma and La Toma, alt. 1900 m, 2 Feb. 1987, *C. Luer, J. Luer & A. Hirtz 12571* (K, MO); San Francisco, trail to quebradas del Diablo, alt. 2800 m, 10 July 1983, *J. Jaramillo 15265* (QCA).
Zamora-Chinchipe: Namírez, north of Cumbaraza, alt. 900 m, 24 Apr. 1974, *G. Harling & L. Andersson 13957* (AMES, GB); Río Valladolid, above Valladolid, alt. 1800 m, Aug. 1985, *D. D'Alessandro 499* (MO); Estación Cientifica San Francisco, between Loja and Zamora, alt. 1850 m, 15 Sept. 2003, *F. Werner 460* (LOJA, MO), C. Luer illustr. 21253.
PERU: **Junín**: Chanchamayo, Río Blanco, Hda. Santa Theresa, alt. 1400 m, *Köhler s.n.* (holotype of *S. koehleri*, lost at B, neotype here designated *J.F. MacBryde 4195* (AMES).
Muña: alt. ca. 7,000 ft., 23 May 1923, *J.F. MacBryde 4195* (AMES).
PANAMA: **Bocas del Toro**: Cerro Colorado, between Río San Felix and mining camp west of Chamé, alt. 1500 m, 8 July 1988, *T. Croat 69199* (MO).
Chiriquí: Caramilla, alt. 4,000-4,500 ft., *C.W. Powell 312* (holotype of *S. eximia*: K, Isotype: AMES); vicinity of Bajo Chorro, alt. 1900 m, 20 July 1940, *R.E. Woodson & R.W. Shery 624* (AMES); San Vicente, Sept. 1976, *C. Luer & H. Butcher 1219* (SEL).
Coclé: north rim of El Valle de Antón, 4 June 1939, *P.H. Allen 1840* (AMES); *P.H. Allen 2173* (AMES); Río Coclé del Norte, alt. ca. 1500 ft., 4 Dec. 1959, *H.A. Dunn 24* (K); El Valle, Mar. 1976, flowered in cultivation 29 Apr. 1976, *C. Luer, J. Luer & P. Taylor 976* (SEL): near old saw mill above Cope, alt. 900 m, 19 Feb. 1985, *C. Luer J. Luer, R. Dressler & K. Dressler 10628* (MO).
COSTA RICA: **Heredia**: Desengaño, 10 May 1857, *H. Wendland 895* (holotype of *S. leucopogon*: W; isotype: K); without locality, *A. Endres 40, 112, 125, 164* (W); vicinity of Vara Blanca, alt. 1680 m, May 1938, *A.F. Skutch 3776* (K, MO).
Cartago: Cascajal, alt. 5,500 ft., July 1919, *C.H. Lankester 93* (holotype of *S. cascajalensis*: K); Cascajal, alt. 2300 ft, 15 May 1924, *C.H. Lankester 851* (AMES, K); vicinity of Vara Blanca, alt. 1680 m, May 1938, *A.F. Skutch 3776* (AMES, K).
Alajuela: San Carlos, Zapote, alt. 1575 m, 4 July 1938, *A. Smith H-836* (AMES); Los Angeles de San Ramón, alt. 1050 m, July 1921, *A.M. Brenes 53* (AMES); Carpintera, alt. 7000 ft., 25 May 1928, *H.E. Stork 2303* (AMES); between San Ramón and Los Angeles, alt. 1150 m, 31 Jan. 1984, *M.W. Chase 84153, 84284* (MO).
Puntarenas: Monteverde, road to Veracruz, alt. 1100 m, 24 May 1993, *Z. Fuentes 329* (CR, MO).
San José: vicinity of La Palma, road to La Hondura, alt. 1500-1700 m, 17 July 1923, *W.R. Maxon 8100* (AMES); La Hondura, alt. 1300-1700 m, 16 Mar. 1924, *P.C. Standley 37602* (AMES); La Palma, 15 May 1925, *C.H. Lankester 975* (AMES).
GUATEMALA: **Solola**: Volcán Atitlan, western slopes, alt. 3,500-4,000 ft., Aug. 1932, *W.R. Hatch s.n.* (AMES).
Quetzaltenango: Palmar, alt. 3,800 ft., 12 Oct. 1934, *A.F. Skutch 1433* (AMES); Finca Mocá, alt. 3,000 ft., 13 Apr. 1931, *J. Bequaert 49* (AMES).
Peten: between San Clements and Dos Arroyas, 1 May 1931, *H.H. Bartlett 12829* (AMES).
MEXICO: **Chiapas**: Rayón, between Tapilula and Tuxtla Gutiérrez, alt. 1200 m, 13 July 1991, *E. Pérez & M.A. Soto 164* (AMO).

This species, or better, species-complex, is widely distributed and variable in size through Central America, where it is known as *Stelis leucopogon* Rchb.f., and the Andes. It is closely related to the complex of *Stelis argentata* Lindl. Typical *Stelis superbiens* is distinguished by a large habit with a long, erect, congested inflorescence of large, flat, widely spread flowers, one of the largest found in Central America. However, it merges with the smaller *S. argentata*, making distinction of intermediate variations a personal opinion. The color varies from yellow through all shades of purple. The sepals are transversely ovate, obtuse and five-veined, but sometimes accessory lateral veins are present for a total of seven, or rarely nine. The internal surfaces are glabrous, or microscopically pubescent. The petals are concave without a transverse callus. The lip is type-C, similar to that of *S. argentata* with a broadly rounded bar. The margin is thin, with a minute, single, acute process. Rarely the apiculum is absent. The margin of the lip of *S. nanegalensis* Lindl. is notched with acute tips to either side of the apiculum to create three "teeth."

100., **100a. Stelis tempestuosa** Luer & Hirtz, Monogr. Syst. Bot. Missouri Bot. Gard. 88: 82, 2002.

Ety.: From the Latin *tempestuosus*, "stormy," referring to the cold, wet, windy pass where the species grows.

ECUADOR: **Zamora-Chinchipe**: cloud forest east of the pass east of Loja, alt. 2750 m, 21 Mar. 1985, *C. Luer, J. Luer, A. Hirtz & W. Flores 10711* (Holotype of *S. tempestuosa*: MO); same area, alt. 2700 m, 21 Sept. 1980, *C. Luer, J. Luer & A. Hirtz 5522* (SEL); south of the pass south of Jimbura, alt. 3050 m, 21 Feb. 1986, *C. Luer, J. Luer, A. Hirtz, W. Flores & A. Embree 12014* (MO); between Yangana and Valladolid, alt. 2700 m, 2 Dec. 1988, *J.E. Madsen, C. Bloch & H. Christensen 75811* (AAU).
Loja: pass north of Loja, alt. 3150 m, 17 Mar. 1984, *C. Luer, S. Dalström, T. Höijer & J. Kuijt 9550* (MO); west of Saraguro, alt. 3400 m, 11 July 2002, *A. Hirtz & X. Hirtz 8421* (MO).
Morona-Santiago: east of the pass between Gualaceo and Limón, alt. 2900 m, 16 Feb. 1986, *C. Luer, J. Luer, A. Hirtz, W. Flores & A. Embree 11806* (MO).

Stelis tempestuosa was described and illustrated in *Icones Pleurothallidinae* 24, Part One, Fig. 100. Figure 100a. is an illustration of a markedly scandent collection with longer ramicauls and racemes.

This species, apparently endemic in the mountains of southeastern Ecuador, is characterized by slender ramicauls that are most frequently caespitose, but sometimes a thick rhizome bears the ramicauls a centimeter or more apart. The narrow leaves are longer than or surpassed by one to three congested racemes of small, yellow flowers. Clusters of irregular, coralloid crystals are commonly present in the sepals, occasionally filling the entire blade. The sepals are glabrous, and the laterals are held forward in apposition as a synsepal, connate only at the base. The petals are broadly subtruncate and single-veined. The lip is type-B, longer than wide, with the apex obtuse, and the base with a broad, minutely pubescent callus.

222. **Stelis tenuilabris** Lindl., Folia Orchid. *Stelis* 4(20), 1858.

Ety.: From the Latin *tenuilabris*, "with thin lip," referring to the labellum.

Syn.: *Stelis alata* Lindl., Folia Orchid. *Stelis* 18(2-3), 1858.
Ety.: From the Latin *alatus*, "winged," referring to the sepals.

Syn.: *Stelis canaliculata* Rchb.f., Gard. Chron. 1718, 1872.
Ety.: From the Latin *canaliculatus*, "channeled," referring to the leaf.

Syn.: *Stelis abbreviata* Luer & Hirtz, Monogr. Syst. Bot. Missouri Bot. Gard. 112: 16, 2007.
Ety.: From the Latin *abbreviatus*, "abbreviated," referring to the short raceme.

VENEZUELA: near Colonia Továr, 1854-55, *A. Fendler 1471* (Holotype of *S. tenuilabris*: K; Isotypes: AMES, G); without locality, 1854-56, *A. Fendler 2154* (Holotype of *S. alata*: K); "Junquito," Sept. 1956, *G.C.K. Dunsterville 375*. **Táchira**: Páramo de Tamá, above Betania, alt. 2500-2895 m, 15 July 1944, *J.A. Steyermark 57296* (AMES).
COLOMBIA: **Cundinamarca**: "Bogotá," cultivated by *Saunders s.n.* (holotype of *S. canaliculata*: W).
ECUADOR: **Pastaza**: near Mera, alt. ca. 1100 m, 4 Apr. 1956, *E. Asplund 20125* (AMES, S); near Mera, alt. ca. 1000 m, Mar. 1976, *C. Luer, J. Luer & P. Taylor 921* (SEL); same collection, flowered in cultivation 23 Dec. 1981, *C. Luer 6790* (MO); east of Mera, alt. 1100 m, 28 Mar. 1984, *C. Luer, S. Dalström, T. Höijer & J. Kuijt 9783* (MO).
Napo: Reventador, alt. 1300 m, 14 Sept. 2004, *A. Hirtz, W. & J. Coeck 9044* (holotype of *S. abbreviata*: MO).
Morona-Santiago: new road west of Macas toward Guamote, alt. 1900 m, 16 Jan. 1989, *C. Luer, J. Luer, A. Hirtz et al. 13938* (MO).

Stelis tenuilabris was described by Lindley from a collection by Fendler from coastal Venezuela. It was described and illustrated as *Stelis abbreviata* Luer & Hirtz from Ecuador in *Icones Pleurothallidinae* 29, Part Three, Fig. 222.

This species is widely distributed through the Andes at relatively low altitudes.

It is characterized by elliptical leaves about as long as the ramicauls, and usually a fascicle of a few short, minutely flowered racemes, very similar in habit to *Stelis hylophila* Rchb.f. The ovate sepals are practically free. The petals and lip are similar, thin, cuneate, shallowly concave, and only slightly thickened along the broadly truncate apex. The lip is the discoid variation of type-C.

415. Stelis tricardium Lindl., Folia Orchid. *Stelis* 14(101), 1858.

Ety.: From the Greek *tricardia*, "three hearts," in allusion to the three cordate sepals.

Plant small to medium in size, epiphytic, caespitose; roots slender. Ramicauls erect, slender, 2-3.5 cm long, enclosed by a tubular sheath on the middle third and 2 other sheaths at the base. **Leaf** erect, coriaceous, elliptical, acute to subacute, 4-5.5 cm long including the petiole ca. 1 cm long, the blade ca. 1 cm wide, cuneate below into the petiole. **Inflorescence** an erect, slender, subdense, distichous, flexuous, many-flowered raceme with several flowers open simultaneously, 12-14 cm long including the peduncle 5-8 cm long, subtended by a spathe ca. 0.5 cm long, from an annulus below the apex of the ramicaul; floral bracts tubular, obtuse, 1 mm long; pedicels 1 mm long; ovary 1.5 mm long; **sepals** expanded, purple, glabrous externally, pubescent within, connate basally for ca. 0.02 mm, broadly ovate, obtuse, 3-veined, the dorsal sepal 2 mm long, 2 mm wide, the lateral sepals 1.5 mm long, 2 mm wide; **petals** purple, transversely cuneate-obovate, shallowly concave, 0.5 mm long, 1 mm wide, 3-veined, the apex broadly rounded or truncate with the margin narrowly thickened; **lip** purple, thick, transversely subquadrate, 0.4 mm long, 0.5 mm wide, 0.3 mm deep, shallowly concave inside the apical margin, the margin round, obtusely subapiculate centrally, the bar convex with a long, narrow glenion, the base broadly truncate, hinged to the base of the column; **column** stout, 0.5 mm long, 0.8 mm wide, the foot obsolescent, the anther and the bilobed stigma apical.

ECUADOR: **Pichincha**: "Quito," *W. Jameson 1322* (Holotype: K); forest between Chiriboga and Santo Domingo, alt. 1500 m, 28 May 1988, *C. Luer & A. Hirtz 13724* (MO).

Lindley described an admittedly imperfect collection by Jameson from near Quito as *Stelis Tricardium*, chosing to use for the epithet a noun, neither adjectival nor possessive. He described the raceme as longer than the leaf, the sepals as pubescent and remarkedly cordate, the petals as cuneate and fleshy, and the lip as *angulato medio carnoso canalic.* These details of the lip are not easily interpreted, but no apiculum was noted, and no flower is available for examination.

Stelis argentata Lindl. is common around Quito, and a collection with shallowly connate, more or less cordate sepals, first thought to be a variation, is presented here as *S. tricardium*. A slender, flexuous raceme far surpasses the narrowly elliptical leaf. The sepals are pubescent, ovate, and obtuse, and more or less contracted below where they are connate only at the base. When expanded, they separate into three heart-shaped parts. The petals are broad with the margin narrowly thickened. The lip is small, not unlike the type-C lip of *S. argentata*, but with a minute, obtuse apiculum.

416. Stelis trichorachis Rchb.f., Bonplandia 3: 71, 1855, as *trichorrachis*.

Ety.: From the Greek *trichorhachis*, "with hair-like rachis," referring to the raceme.

Syn.: *Stelis rhizomatosa* Schltr., Repert. Spec. Nov. Regni Veg. Beih. 9: 69, 1921.
Ety.: From the Greek *rhizomatosa*, "with a rhizome," referring to the creeping habit.

Plant medium in size, epiphytic, repent, the rhizome stout, 4-5 mm thick, 0.5-1 cm between ramicauls; roots slender. Ramicauls ascending, erect, stout, 5-12 cm long, enclosed by a tubular sheath from below the middle and 2-3 other sheaths at the base. **Leaf** erect, coriaceous, elliptical-obovate, subacute, 8-11 cm long including the slender petiole 1.5-2 cm long, the blade 1.5-2 cm wide, cuneate below into the petiole. **Inflorescence** an erect, sublax, distichous, flexuous, many-flowered raceme with several flowers open simultaneously, 5-12 cm long including the peduncle 1.5-2 cm long, subtended by a spathe less than 0.5 cm long, from an annulus below the apex of the ramicaul; floral bracts oblique, acute, 2 mm long; pedicels 1 mm long; ovary 1.5 mm long; **sepals** expanded, greenish white outer half, purple inner half, glabrous externally, minutely pubescent within, connate basally, broadly

ovate, obtuse, 3-veined, the dorsal sepal 3.5 mm long, 3.5 mm wide, the lateral sepals 2.5 mm long, 3.5 mm wide; **petals** purple, transversely obovate, concave below the broadly rounded, broadly thickened apex, 0.8 mm long, 1.2 mm wide, 3-veined; **lip** purple, thick, transversely subquadrate, 0.6 mm long, 0.8 mm wide, 0.25 mm deep, shallowly concave inside the apical margin, the margin broadly round, minutely apiculate centrally, the bar convex with a long, narrow glenion, the base minutely pubescent, truncate, hinged to the base of the column; **column** stout, 0.8 mm long, 0.8 mm wide, the foot obsolescent, the anther and the bilobed stigma apical.

COLOMBIA: **Santander**: Ocaña, alt, 5,000 ft., Oct. 1850, *L. Schlim 168* (Holotype of *S. trichorachis*: W; Isotypes: BR, G, K).
ECUADOR: **Loja**: above Vilcabamba along river, alt. 2000-2400 m, May 1985, *D. D'Alessandro 347* (MO).
Zamora-Chinchipe: new road between Loja and Zamora, alt. 2250 m, 22 May 1988, *C. Luer, A. Hirtz, et al. 13597* (MO).
PERU: **Cajamarca**: Jaen, Cordillera east of Huancabamba, alt. 2400-2500 m, Apr. 1912, *A. Weberbauer 6110* (holotype of *S. rhizomatosa*: destroyed at B; lectotype here designated: AMES; isolectotype: US).

This species is uncommon, but widely distributed in the Andes from the Eastern Cordillera of Colombia into Peru. It is distinguished by a thick, repent rhizome, with erect ramicauls; longer, long-petiolate leaves; and a sublax, flexuous raceme shorter than the leaf. Morphologically, the flowers are practically identical to those of *Stelis argentata* Lindl.

417. **Stelis tridactylon** Luer, Selbyana 5(2): 193, 1979.

Ety.: From the Greek *tridactylon*, "three-fingered," referring to the three-pronged flowers.

Syn.: *Stelis stella* O.Duque, Orquideologia 20(3): 373, 1997.
Ety.: From the Latin *stella*, "a star," referring to the appearance of a three-pointed star.

Plant medium to large in size, epiphytic, caespitose; roots slender. Ramicauls erect, stout, 5-12 cm long, slightly compressed above, with a loose, tubular sheath near the middle, and 2 other sheaths at the base. **Leaf** erect, coriaceous, elliptical, subacute to obtuse, 8-13 cm long, 2.5-4 cm wide, cuneate below into the subsessile base. **Inflorescence** an erect, distichous, nearly simultaneously many-flowered raceme, 15-23 cm long including the peduncle 5-10 cm long, subtended by a large spathe 2-3.5 cm long at the base of the leaf; floral bracts tubular, 2 mm long; pedicels 3 mm long; ovary 3 mm long; **sepals** green, suffused with red below the middle, similar, cellular-glandular, connate basally, ovate-triangular with markedly revolute sides, narrowly obtuse, 10 mm long in lower flowers, 3 mm long in highest flowers, 1.5-2 mm wide, 3 mm wide expanded, 3-veined; **petals** red, transversely flabellate, with the apex broadly rounded, thickened along the margin, shallowly concave, 1 mm long, 1.5 mm wide, 3-veined; **lip** red, thickly hemispherical, with the apex broadly rounded, 1 mm long, 1 mm wide, 1 mm deep, shallowly concave anteriorly with a small glenion, flattened dorsally, the base truncate, hinged to the base of the column; **column** stout, 1 mm long, the foot obsolescent, the anther and the bilobed stigma apical.

ECUADOR: **Napo**: north of Archidona, alt. ca. 600 m, collected 27 July 1975, flowered in cultivation, *C. Luer, G. Luer & S. Wilhelm 622* (Holotype of *S. tridactylon*: SEL; Isotypes: AMES, K).
Pastaza: Mera, Río Pastaza, alt. ca. 1000 m, 21 Nov. 1955, *E. Asplund 18539* (AMES, S).
Morona-Santiago: between Mendez and Morona, alt. ca. 900 m, 19 Jan. 1989, *A. Hirtz, A. Andreetta & S. Ortega 4161* (MO); between Macas and Guamote, alt. 1500 m, Dec. 1994, *A. Hirtz, X. Hirtz & J. del Hierro 6052* (MO); Chiviaza, east of Limón, alt. 1300 m, 21 Oct. 1999, *A. Hirtz, E. Sánchez & S. Marin 7029* (MO).
Zamora-Chinchipe: Cordillera del Condor, Río Nangaritza south of Paquisha, alt. 950 m, 11 Feb. 1993, *S. Dalström, T. Höijer & H. Wanntorp 1891* (MO).
COLOMBIA: **Valle del Cauca**: near Buenaventura, collected and cultivated by O. & M. Robledo at La Ceja, flowered in cultivation 2 June 1990, *O. Duque 1143* (holotype of *S. stella*: JAUM).

This species is widely distributed from southern Colombia to southern Ecuador. It is characterized by a large, elliptical, subsessile leaf, and a simultaneously many-flowered raceme more or less twice longer. The sepals are narrow with markedly recurved sides, and widely expanded like three fingers. The sepals of the flowers low in the raceme are largest, up to one centimeter long, but those near the tip measure only about three millimeters. The petals are small and flabellate, and the type-A lip is small and thick with the apex rounded.

56., **56a., 56b. Stelis tridentata** Lindl., Folia Orchid. *Stelis* 6(40), 1858,

Ety.: From the Latin *tridentatus*, "three-toothed," referring to the tips of the leaves.

Syn.: *Stelis ferax* Luer & Hirtz, Monogr. Syst. Bot. Missouri Bot. Gard. 88: 46, 2002.
Ety.: From the Latin *ferax*, "fruitful," referring to the copious production of capsules.

ECUADOR: **Pichincha**: without locality, *W. Jameson s.n.* (Holotype of *S. tridentata*: W); between Chiriboga and Guajalito, alt. 2000 m, 20 Jan. 1956, *E. Asplund 19059* (AMES, S); old road to Santo Domingo, alt. ca. 2500 m, 17 Aug. 1975, *C. Luer, G. Luer & S. Wilhelm 376* (SEL); southwest of Chiriboga, alt. 2200 m, 22 Mar. 1979, *B. Løjtnant & U. Molau 11295* (AAU, GB); between Tandayapa and Mindo, alt. 2320 m, 13 Mar. 1982, *C. Luer, A. Hirtz & S. Dalström 7296, 7299* (SEL); between Quito and Tandayapam alt. 2250 m, 7 Aug. 1984, *C.H. Dodson, A. Gentry, W. Palacios & J. Zaruma 15245* (MO).
Carchi: near the pass between Tulcán and Maldonado, alt. 2400 m, 16 Mar. 1991, *C. Luer, J. Luer, J. del Hierro, A. & X. Hirtz 15084* (holotype of *S. ferax*: MO).
COSTA RICA: **Cartago**: forest on Volcán Turrialba, alt. 2000 m, 21 Mar. 1986, *C. Luer, J. Luer, T. Linder & W. Rhodehamel 12132* (MO); without locality, cultivated at Lankester Garden, 18 Mar. 1995, *C. Luer 17407* (MO).

Stelis tridentata was described by Lindley from a collection by Jameson in the province of Pichincha, Ecuador, in an area where it is relatively frequent today. A distant population occurs in Cartago in Costa Rica, which could be explained by ancient trade by the Indians. An unrecognized collection from the province of Carchi, Ecuador, was described and illustrated in *Icones Pleurothallidinarum* 24, Part One, Fig. 56., as *S. ferax* Luer & Hirtz. Variations are offered in Fig. 56a. and Fig. 56b.

Vegetatively, this species is easily recognized by the repent habit, ascending ramicauls, and long-petiolate, broadly elliptical leaves that are tapered at both ends. The raceme of numerous small flowers with broadly ovate, pubescent sepals exceeds the leaf. The type-C lip has a minute spicule on the margin as seen in *Stelis argentata* Lindl.

418., 418a. Stelis triplicata Lindl., Folia Orchid. *Stelis* 2(5), 1858; .

Ety.: From the Latin *triplicatus*, "three-plicate," referring to plicate corners between the sepals, undoubtedly an artifact caused by drying and hydration of an old, or wilted, flower.

Plant large, epiphytic, caespitose; roots slender. Ramicauls erect, stout, 4-10 cm long, enclosed by a large, loose, tubular sheath from below the middle and 2 others below. **Leaf** erect, thickly coriaceous, elliptical, obtuse, 9-15 cm long, 1.5-5 cm wide, cuneate below into the sessile or subpetiolate base. **Inflorescence** an erect, congested, distichous, many-flowered raceme with many flowers open simultaneously, to 35 cm long including the peduncle ca. 10 cm long, with a spathe 1.5 cm long, from an annulus near the apex of the ramicaul; floral bracts inflated, oblique, acuminate, more or less imbricating, 12 mm long below to 6 mm long above; pedicels 4-7 mm long, within the floral bract; ovary 2-3 mm long; flowers purple to orange-brown; **sepals** glabrous, transversely ovate, obtuse, deeply connate, the dorsal sepal 5-9 mm long, 6.5-11 mm wide, 7-veined, the lateral sepals 4-6 mm long, 6-8 mm wide, 5-(6-)veined; **petals** triangular, obtuse, 1.5 mm long, 2 mm wide, with a transverse callus, the margin broad, flat; **lip** thickly triangular, 0.9 mm long, 1.3 mm wide, 1 mm deep, shallowly concave anteriorly with a relatively large glenion, the apex obtuse with a broad margin, the dorsum with a broad, low, minutely pubescent callus, OR *lip* thickly oblong, 1.2 mm long (top), 1.8 mm wide, 2.5 mm deep (length), shallowly concave anteriorly with a large, deep glenion, the apex round with a thick margin, the dorsum with a low, cellular-pubescent callus, the base broadly truncate, hinged to the base of the column; **column** stout, 1 mm long, 1.5 mm wide, the anther and the bilobed stigma apical, the foot obsolescent.

ECUADOR: **Napo**: Eastern Cordillera near Baeza, 1857, *W. Jameson s.n.* (Holotype of *S. triplicata*: K).
Morona-Santiago: new road between Macas and Guamote, alt. 1100 m, 6 Feb. 1987, *C. Luer, J. Luer & A. Hirtz 12692* (K, MO); Plan de Milagro, near Limón, alt. 1000 m, cultivated by Ecuagenera, 11 July 2002, *A. Hirtz 8385* (MO), cultivated by Ecuagenera, *C. Luer 19823*.
Sucumbios: between La Bonita and Rosa Florida, alt. 1600-2000 m, 14 Mar. 1996, *S. Dalström, S. Ingram & K. Ferrell-Ingram 2126* (MO), C. Luer illustr. 20467.

This handsome species from the eastern slopes of the Andes of Ecuador is distinguished by a large, robust habit, and a long, congested raceme of large, alternating floral bracts from which large flowers protrude. The flowers from the original Jameson collection were undoubtedly old, because wrinkles are drawn by Lindley on the type-sheet, and Elmer Smith drew the wrinkles as well (Garay, 1980). The sepals of freshly pickled flowers are not wrinkled. The sepals are transversely ovate with the dorsal sepal at least seven-veined, and the petals are thickly triangular. The lip of the type-collection is triangular and obtuse, a common rendition of type-A. The lip illustrated by Elmer Smith is most unusual, being oblong and protruding. A similar strange lip is present on a specimen collected by Dalström (*Dalström 2126*, Fig. 418a.; lip of the type, in Fig. 418.).

419., 419a. Stelis tristyla Lindl., Bot. Reg. 24: misc. no. 69, 1838.

Ety.: From the Greek *tristylos*, "three-pillared," referring to the three lobes of the column (two stigmas and the rostellum).

Plant small to large, epiphytic, caespitose; roots slender. Ramicauls erect, stout, 6-8 cm long, enclosed by a loose, tubular sheath from below the middle and 2 other sheaths about the base. **Leaf** erect, coriaceous, elliptical, obtuse, 8-12 cm long, 2-3.5 cm wide, cuneate below into the subpetiolate or sessile base. **Inflorescence** an erect, congested, distichous, many-flowered raceme with many flowers open simultaneously, to 25 cm long including the peduncle less than 10 cm long, with a spathe 10-15 mm long, from an annulus near the apex of the ramicaul; floral bracts thin, oblique, acuminate, not diverging, more or less appressed to the rachis, from 10 mm long below to 4 mm long above; pedicels 3-7 mm long, within the floral bract; ovary 2-3 mm long; flowers purple; **sepals** glabrous or microscopically pubescent, transversely ovate, obtuse, deeply connate, the dorsal sepal 4-6 mm long, 5-7 mm wide, 5-veined, the lateral sepals 4-6 mm long, 5-6 mm wide, 4-veined; **petals** purple, triangular, broadly obtuse, 1-1.5 mm long, 2-2.5 mm wide, with a transverse callus, the margin broad, flat, microscopically cellular; **lip** thickly triangular, 1 mm long, 1.2 mm wide, 1.2 mm deep, shallowly concave anteriorly with a shallow glenion, with the apex round with a broad margin, the dorsum tricallous, the base broadly truncate, hinged to the base of the column; **column** stout, 1 mm long, 1.5 mm wide, the anther and the bilobed stigma apical, the foot obsolescent.

BRAZIL: without locality, Apr. 1838, *Loddiges s.n.* (Holotype of *S. tristyla*: K; Isotype: BM); without collection data, *Gardner 3201* (K); without collection data, *Loddiges s.n.* (K); without collection data, *Miers s.n.* (K).
Rio de Janeiro: Radero, flowered in cultivation, 30 Oct. 1912 (BR); without data, flowered in cultivation at Orquideario Binot, Petropolis, 2 Oct. 1996, *C. Luer 18083* (MO); near Pati do Alferes, cultivated by Maria Rita Cabral, 26 Mar. 2007, *C. Luer 21209* (MO).
VENEZUELA: **Bolívar**: Mt. Roraima, upper slopes, Oct. 1884-Jan. 1885, *Im Thurn 285* (K).
Without locality, May 1969, *G.C.K. Dunsterville 1116*.
ECUADOR: **Tungurahua**: in guava trees near Río Negro, alt. 1500 m, 28 Mar. 1984, *C. Luer, S. Dalström, T. Höijer & J. Kuijt 9774* (MO).
Pastaza: cloud forest, Río Zuñag, alt. 2000 m, 25 Feb. 1990, *A. Hirtz, S. Dalström et al. 4548* (MO); north of Topo, along Río Zuñag, alt. 2500 m. 25 Feb. 1990, *S. Dalström et al. 1412* (MO).
Morona Santiago: Cordillera del Condor, east of Guismé, alt. 1650 m, *C. Luer, J. Luer, A. & P. Jesup 14020* (MO); east of Los Encuentros, alt. 1600 m, 4 Feb. 1987, *C. Luer, J. Luer & A. Hirtz 12629* (MO); Cordillera del Cutucú, Macuma, alt. 900 m, cultivated in Macas by A. Zhiminaicala, 1 Mar. 2001, *C. Luer 19579* (MO);
Zamora Chinchipe: Río Valladolid, above Valladolid, alt. 1700 m, 16 Apr. 1986, *D. D'Alessandro 604* (MO).

This species is variable in size in its wide distribution from Venezuela through Ecuador, and southern Brazil, but still unreported from intervening Peru and Bolivia. It is distinguished by a usually robust habit with proportionately short, stout ramicauls and a congested raceme of relatively large, expanded flowers and large floral bracts. The broad, obtuse sepals are deeply connate to form a broad,

flat flower. The dorsal sepal is five-veined. The petals are thickly triangular and obtuse, and the lip is type-A.

The smaller *Stelis muscifera* Lindl. is similar and separates from *S. tristyla* indecisively. The usually larger *S. triplicata* Lindl. is also similar, but distinguished by having seven or more veins in the dorsal sepal. Some collections, tentatively identified as *S. tristyla*, seem intermediate with accessory veins. Perhaps the three species should be treated as a single species-complex.

420. Stelis undecimi Luer & F.Werner, sp. nov.

Ety.: From the Latin adjective *undecimus*, "eleven," referring nerves of the dorsal sepal.

Species haec *Stelidis pachyphytae* Luer & Hirtz affinis, sed floribus majoribus cum sepalis multinervatis differt.

Plant large, epiphytic, caespitose; roots slender. Ramicauls erect, stout, 5 mm thick above, 7-12 cm long, enclosed by a large, loose tubular sheath above the middle and 2-3 other sheaths at the base. **Leaf** erect, thickly coriaceous, broadly elliptical, obtuse, 15-16 cm long, the blade 4-5 cm wide, conduplicate toward the sessile base. **Inflorescence** a stout, erect, congested, many-flowered raceme, secund with flowers overlapping, many flowers open simultaneously, 25 cm long including the peduncle 12 cm long, from the base of the leaf, with a spathe 2 cm long; floral bracts broad, tubular, 2-3 mm long; pedicels 2-3.5 mm long; ovary 2 mm long; flowers dark purple; **sepals** fleshy, glabrous externally, diffusely cellular-glandular within, ovate, obtuse, the dorsal sepal 7 mm long, 5 mm wide, 11-veined, connate 1 mm basally, the lateral sepals 6 mm long, 4 mm wide, connate 2 mm; **petals** transversely semilunate, 1.2 mm long, 2 mm wide, 3-veined, shallowly concave within the rounded, thickened margin; **lip** oblong-subquadrate, 0.8 mm long, 1.5 mm wide, 1.3 mm deep, the bar shallowly concave anteriorly, with a small glenion, the dorsum narrow, deflexed, the base truncate, hinged to the base of the column; **column** stout, 1 mm long, 1.75 mm wide, the foot obsolescent, the anther and the bilobed stigma apical.

ECUADOR: **Zamora-Chinchipe**: Estación Cientifica San Francisco, between Loja and Zamora, alt. 2050 m, 23 Mar. 2004, *F. Werner 869* (Holotype of *S. undecimi*: MO; Isotype: Loja), C. Luer illustr. 20927.

This large species is possibly only a variation of sympatric *Stelis pachyphyta* Luer & Hirtz, varying in larger flowers with sepals bearing twice as many veins. The ramicauls are stout; the leaves are rigidly and thickly coriaceous; the leaves are conduplicate at the base and sessile; the peduncle is stout with a multiflowered raceme beyond the leaf. Instead of five veins, eleven veins are present in the dorsal sepal, and nine in each of the lateral sepals. The petals and lip are similar.

88., 224., 275. **Stelis vesca** Luer & Hirtz, Monogr. Syst. Bot. Missouri Bot. Gard. 88: 63, 2002.

Ety.: From the Latin *vescus*, "little, weak," referring to the habit.

Syn.: *Stelis aliquantula* Luer & Hirtz, Monogr. Syst. Bot. Missouri Bot. Gard. 112: 17, 2007., *Icones Pleuroth.* 29, Part Three, Fig. 224.

Ety.: From the Latin *aliquantulus*, "little," referring to the habit.

Syn.: *Stelis orbiculata* Luer & Endara, Monogr. Syst. Bot. Missouri Bot. Gard. 112: 42: 2007. *Icones Pleuroth.* 29, Part Three, Fig. 275.

Ety.: From the Latin *orbiculatus*, "round," referring to the sepals.

ECUADOR: **Morona-Santiago**: along Río Yunganza below Limón, 17 Feb. 1986, *C. Luer, J. Luer, A. Hirtz, W. Flores & A. Embree 11854* (Holotype of *S. vesca*: MO); along Río Paute near Guarumales, alt. 2000 m, 20 Oct. 1999, *A. Hirtz & E. Sánchez 7001* (holotype of *S. aliquantula*: MO), C. Luer illustr. 20865; near Campamento Guarumales, alt. 1650 m, 24 Mar. 1991, *C. Luer, J. Luer, A. Andreetta & L. Morocho 15238* (holotype of *S. orbiculata*: MO); between Amaluza and Guarumales, alt. 1800 m, 1 May 2004, *A. Hirtz 8726* (MO), C. Luer illustr. 20859.
Zamora-Chinchipe: east of the pass (El Toro) between Loja and Zamora, alt. 2550 m, 22 Oct. 2004, *F. Werner 1237* (MO); south of the pass south of Yangana, above Valladolid, alt. 2450 m, 18 Mar. 1984, *C. Luer, S. Dalström, T. Höijer & J. Kuijt 9568* (MO).

This tiny species is apparently frequent in an area of relatively lowland of southern Ecuador. Minor variations are frequent, two of which have been described and illustrated, both in *Icones Pleurothallidinarum.* 29, Part Three, one as *Stelis aliquantula* Luer & Hirtz, Fig. 224., the other as *Stelis orbiculata* Luer & Endara, Fig. 275.

Stelis vesca is distinguished by a very small, caespitose habit with elliptical leaves that stands less than three centimeters tall. The leaves are surpassed by a loose raceme of small, purple flowers. The sepals are glabrous and suborbicular; the petals are single-veined; and the type-A lip is shallowly concave anteriorly with the margin entire, and the dorsum is variably callous and microscopically pubescent.

421. **Stelis villosilabia** Luer & Hirtz, sp. nov.

Ety.: From the Latin *villosilabius*, "with hairy lip," referring to the labellum.

Species haec *Stelidis exiguae* Luer & Hirtz affinis, sed floribus multimajoribus, racemo laxe pluriflоro, sepalis semiconnatis et labello subquadrato infra medium dense villoso differt.

Plant small, epiphytic, caespitose; roots slender. Ramicauls erect, slender, 10-15 mm long, enclosed by loose, ribbed, tubular sheaths. **Leaf** erect, coriaceous, elliptical, obtuse, petiolate, 20-30 mm long including a petiole 5-10 mm long, the blade 7-10 mm wide, cuneate below into the petiole. **Inflorescence** an erect, subflexuous, loose, simultaneously several-flowered raceme to 5 cm long including the peduncle 2.5 cm long, from an annulus below the apex of the ramicaul; floral bracts oblique, acute, 3 mm long; pedicels 3 mm long; ovary 0.8 mm long; flowers light yellow; **sepals** glabrous, ovate, obtuse, 1-veined, the dorsal sepal obscurely 3-veined at the base, connate 1 mm into a tube filled with the central apparatus, the dorsal sepal 2 mm long, 2 mm wide, the lateral sepals oblique, connate 1 mm, 2.5 mm long, 2 mm wide; **petals** thin, subquadrate, shallowly concave, broadly truncate, 0.8 mm long, 0.8 mm wide; **lip** subquadrate, truncate, 1.3 mm long, 1 mm wide, 0.5 mm deep, shallowly concave above the middle, with a low, oblong callus extending forward from the thick, densely pubescent half below the middle, the base truncate, hinged to the obsolescent column-foot; **column** stout, 1 mm long, 1 mm wide, with the anther and stigma apical.

ECUADOR: **Morona-Santiago**: between Guamote and Macas, alt. 2800 m, collected and cultivated by Hirtz in Quito, Oct. 2006, *A. Hirtz 9172* (Holotype of *S. villosilabia*: MO), C. Luer 21278.

This little species is most closely allied to *Stelis exigua* Luer & Hirtz, from which it differs in much larger flowers with semiconnate sepals born in a loose, simultaneously, several-flowered raceme, and a thick mat of coarse hairs that occupy the proximal half of a subquadrate lip. It is also similar to *S. capsula* Luer & Hirtz and *S. dimidiata* Luer & Hirtz. but differing in single-veined lateral sepals and petals. With the latter two, it shares deeply connate sepals that form a cup to contain the central apparatus.

79., **78a. Stelis viridibrunnea** Lehm. & Kraenzl., Bot. Jahrb. Syst. 26: 448, 1899.

Ety.: From the Latin *viridibrunneus*, "greenish brown," referring to the colors of the flowers.

Syn.: *Stelis procera* Luer, Monogr. Syst. Bot. Missouri Bot. Gard. 88: 57, 2002.
Ety.: From the Latin *procerus*, "elongated," referring to the peduncle and raceme.

Plant medium in size, epiphytic, caespitose; roots slender. Ramicauls erect, slender, 3-4 cm long, enclosed by a loose, tubular sheath, and 2 others below. **Leaf** erect, coriaceous, narrowly elliptical, subacute to obtuse, 6-7 cm long including a petiole 1-1.5 cm long, the blade 1.2-1.5 cm wide, cuneate below into the petiole. **Inflorescence** an erect, slender, laxly many-flowered raceme with several flowers open simultaneously, 5-12 cm long, total length to 26 cm long including a peduncle 14 cm long, with several, distant bracts, from an annulus below the apex of the ramicaul; floral bracts tubular, acute, 2-3 mm long; pedicels 1-1.5 mm long; ovary 2 mm long; **sepals** similar, cream-col-

ored, glabrous but with shortly ciliated margins, broadly ovate, obtuse, connate basally, 2.5 mm long, 2.5 mm wide, 3-veined; **petals** yellow with purple margin, transversely oblong-suborbicular, 1 mm long, 1.5 mm wide, 3-veined, concave below the broadly rounded, slightly thickened, apical margin; **lip** yellow with purple margins, discoid, shallowly subquadrate-oblong, 0.75 mm long, 1.4 mm wide, 1.4 mm deep, the apex broadly rounded with a slightly thickened margin, shallowly concave anteriorly with a narrow glenion, the dorsum with a low callus, pubescent, the base broadly truncate, hinged to the base of the column; **column** stout, 1.5 mm long, 1.4 mm wide, the foot obsolescent, the anther and the stigma apical and bilobed with the lobes confluent beneath the rostellar flap.

ECUADOR: **Loja**: near Zaraguro, Cerro Pulla and Acacana, alt. 2600-2800 m, *F.C. Lehmann 8221* (Holotype of *S. viridibrunnea*: K; Isotype: AMES); near Yangana, collected *D. D'Alessandro 80-0107*, flowered in cultivation at SEL, 1981, *C. Luer 6448* (holotype of *S. procera*).

This species, apparently endemic in southern Ecuador, is allied to *Stelis major* Rchb.f., but differs with narrower leaves; a proportionately short, loose, several-flowered raceme borne by a thrice longer peduncle; and flowers half the size. The sepals are ovate, obtuse, and minutely ciliate; the petals are suborbicular and concave; and the lip is discoid, a variant of type-C, or flat vertically, that is, much deeper than long. It is illustrated as *Stelis procera* Luer in Part One of the *Stelis of Ecuador* in Icones-24.

422. Stelis viridula Luer, Phytologia 49(3): 240, 1981, not *Stelis viridula* (Barb.Rodr.) Pridgeon & M.W.Chase, Lindleyana 17: 267, 2001. [=*Pabstiella filiformis* (Cogn.) Luer].

Ety.: From the Latin *viridulus*, "greenish," referring to the flowers.

Plant small, epiphytic, caespitose; roots slender. Ramicauls erect, slender, 3-5 mm long, enclosed by 2-3 thin, ribbed, tubular sheaths. **Leaf** erect, coriaceous, narrowly elliptical-obovate, subacute to obtuse, 15-27 mm long including a petiole 3-5 mm long, 2.5-4 mm wide, gradually narrowed below into the petiole. **Inflorescence** a suberect, slightly flexuous, lax, several-flowered raceme with 2-4 flowers open simultaneously, 3-6 cm long including the peduncle 1-2 cm long, from an annulus below the apex of the ramicaul; floral bracts infundibular, acute, 1 mm long; pedicels 1 mm long; ovary 0.75 mm long; **sepals** similar, pale green, glabrous externally, shortly pubescent within with the hairs capitate, broadly ovate, obtuse, 1-veined, connate basally, the dorsal sepal 1.3 mm long, 1.3 mm wide, the lateral sepals 1.3 mm long, 1 mm wide; **petals** membranous, translucent light green, transversely oblong, slightly concave, 0.5 mm long, 0.66 mm wide, 1-veined, the apex broadly subtruncate, slightly thickened on the margin; **lip** light green, thickly ovoid-subpyramidal, 0.4 mm long, 0.6 mm wide, flattened anteriorly with the apex broadly obtuse, the dorsum deflexed with a broad, flat callus and a slender glenion descending anteriorly, the base truncate, hinged to the base of the column; **column** stout, 0.4 mm long, 0.6 mm wide, the foot rudimentary, 0.2 mm long, the anther and the bilobed stigma apical.

ECUADOR: **Morona-Santiago**: forest along Río Calagras, alt. 1600 m, 19 Sept. 1980, *C. Luer, J. Luer, A. Andreetta & C. Dodson 5488* (Holotype of *S. viridula*: SEL); flowered in cultivation 20 Mar. 1981, *C. Luer 5982* (SEL); same area, alt. 1500 m, 16 Feb. 1986, *C. Luer, J. Luer, A. Hirtz, W. Flores & A. Embree 11869* (MO); same area, alt. 1550 m, 19 Jan. 1989, *C. Luer, J. Luer, A. Jesup & P. Jesup 14005* (MO).
Pastaza: north of Puyo, alt. 1000 m, 12 Apr. 1985, *C. Luer, J. Luer, A. Hirtz & W. Flores 11213* (MO).

Vegetatively, this little species is similar to many of the others species characterized by a tiny, tufted habit and a loose, several-flowered raceme that exceeds the leaves in length. The minute, greenish flowers of *Stelis viridula* are distinct with obtuse, capitate-pubescent sepals; transversely oblong, membranous, single-veined petals; and a tiny, thick, type-A lip.

423. **Stelis xystophora** Luer, sp. nov.

Ety.: From the Greek *xystophorus*, "spear bearing," referring to the slender leaves and ramicauls.

Species haec *Stelidis congestae* Luer & Hirtz similis, sed caulibus proportione longioribus, floribus minoribus, et labello subdiscoideo apice late apiculato differt.

Plant medium in size, epiphytic (present specimen terrestrial), densely caespitose; roots filiform. Ramicauls erect, slender, 16-20 cm long, enclosed by a tubular sheath on the middle third, and 2-3 other sheaths at the base. **Leaf** erect, coriaceous, narrowly elliptical-oblong, narrowly obtuse, 9-10 cm long including a petiole ca. 1.5 cm long, the blade 1-1.3 cm wide, narrowly cuneate below into the slender petiole. **Inflorescence** 1-3 erect, strict, congested, successively many-flowered racemes, 6-11 cm long including the peduncle 1-2 cm long, with many flowers open simultaneously, from an annulus below the apex of the ramicaul with a spathe 10-12 mm long; floral bracts oblique, acute, 2 mm long; pedicels 1 mm long; ovary 1 mm long; **sepals** expanded, brownish purple, glabrous externally, microscopically cellular papillose within, broadly ovate, obtuse, connate basally, the dorsal sepal 1.5 mm long, 1.75 mm wide, 3-veined, the lateral sepals oblique, 1.5 mm long, 1.5 mm wide, 3-veined; **petals** transversely ovate, shallowly concave, the apex broadly rounded with a thickened margin, 0.8 mm long, 0.9 mm wide, 3-veined; **lip** thickly subcircular, 0.6 mm long, 0.8 mm wide, 0.8 mm deep, the apical margin with an obtuse, triangular apiculum, broadly concave anteriorly, with the margins barely thickened, the bar thick, with a narrow glenion, the dorsum with an oblong, flat callus, cellular-pubescent on the slightly elevated margins, the base broadly truncate, hinged to the base of the column; **column** stout, 0.8 mm long, 0.8 mm wide, the foot obsolescent, the anther and the bilobed stigma apical.

ECUADOR: **Loja**: Nudo de Sabanilla, 8 km above Yangana, alt. 2300-2500 m, 2 Apr. 1985, *G. Harling & L. Andersson 23548* (Holotype of *S. xystophora*: GB), C. Luer illustr. 21294.

This species, known from only one collection in southeastern Ecuador, is distinguished by a densely caespitose habit with narrowly elliptical-oblong leaves borne by much longer, slender ramicauls, and one to three inflorescences usually shorter than, or with time, barely exceeding the leaves. The raceme is slowly successive, or with several flowers open simultaneously in a many-flowered raceme, with the flowers overlapping. The sepals are expanded and broadly obtuse; the petals are transversely ovate and three-veined; and the lip is thickly subcircular, and concave anteriorly with a triangular apiculum.

91., 288. **Stelis yanganensis** Luer & Hirtz, Monogr. Syst. Bot. Missouri Bot. Gard. 88: 64, 2002.

Ety.: Named for the community of Yangana in southern Ecuador near where this species was found.

Syn.: *Stelis similis* Luer & Hirtz, Monogr. Syst. Bot. Missouri Bot. Gard. 112: 49, 2007.
Ety.: From the Latin *similis*, "similar," in allusion to the similarity to other species.

Plant small in size, epiphytic, caespitose; roots slender. Ramicauls erect, slender, 1.5-4.5 cm long, enclosed by 2 tubular sheaths, and another at the base. **Leaf** erect, coriaceous, elliptical, acute to subacute, short- to long-petiolate, 2-4.5 cm long including the petiole 0.5-1.5 cm long, the blade 0.5-0.8 cm wide, cuneate below into the petiole. **Inflorescence** an erect, subcongested, subflexuous, successively many-flowered raceme, 3-10 cm long including the peduncle 1.5-2.5 cm long, several flowers open simultaneously, from an annulus below the apex of the ramicaul; floral bracts acute, oblique, 1-2 mm long; pedicels 1.25 mm long; ovary 1 mm long; **sepals** dull white, yellow to red-purple, glabrous or cellular pubescent within, expanded, broadly ovate, obtuse, subequal, connate basally, the dorsal sepal 2.5 mm long, 2 mm wide, 3-veined, the lateral sepals oblique, 2 mm long, 1.6 mm wide, 3-veined; **petals** purple, triangular-ovate, 0.8 mm long, 0.8 mm wide, 3-veined, shallowly concave below the obtuse apex with a narrow margin, concave below with a transverse callus; **lip** purple, triangular, 0.5 mm long, 0.85 mm wide, 0.66 mm deep, the apex obtuse, shallowly concave anteriorly with a shallow glenion, the dorsum with a small, rounded callus, the base broadly truncate, hinged to the base of the column; **column** stout, 0.75 mm long, 0.8 mm wide, the foot obsolescent, the anther and the bilobed stigma apical.

ECUADOR: **Zamora-Chinchipe**: south of Yangana above Valladolid, alt. 2450 m, 23 Mar. 1985, *C. Luer, J. Luer, A. Hirtz & W. Flores 10932* (Holotype of *S. yanganensis*: MO); south of Yangana, alt. 2400 m, 3 Mar. 1982, *C. Luer, A. Andreetta, D. D'Alessandro & S. Dalström 7092* (SEL).
Pastaza: north of Mera, alt. 1350 m, 12 Apr. 1985, *C. Luer, J. Luer, A. Hirtz & W. Flores 11200* (MO).
Bolívar: at the pass north of Chillanes, alt. 2650 m, 25 Mar. 1984, *C. Luer, A. Hirtz, S. Dalström et al. 9721* (MO).
Morona-Santiago: east of the pass between Gualaceo and Limón, alt. 2900 m, 16 Feb. 1986, *C. Luer, J. Luer, A. Hirtz, W. Flores & A. Embree 11819* (MO); new road between Guamote and Macas, alt. 2900 m, 14-16 Oct. 2004, *A. Hirtz, E. Sánchez et al. 9117* (holotype of *S. similis*: MO), C. Luer illustr. 20889; along Río Yunganza below Limón, 17 Feb. 1986, *C. Luer, J. Luer, A. Hirtz, W. Flores & A. Embree 11854* (MO); forest between Gualaceo and Limón, alt. 2150 m, 14 Jan. 1989, *C. Luer, J. Luer, A. Hirtz, A. & P. Jesup 13886* (MO).
Zamora-Chinchipe: Cordillera del Condor, east of Paquisha, alt. 1200 m, 23 Jan. 1992, *C. Luer, J. Luer, A. Hirtz, A. & P. Jesup 16130* (MO).

This small to medium sized, caespitose species, as conceived today, is vegetatively variable and relatively frequent in its wide distribution in central and southern Ecuador. It usually stands more than five centimeters tall with narrow, long-petiolate leaves that appear similar to those of *Stelis hallii* Lindl. Smaller plants with proportionately wider leaves blend into *S. calantha* Luer & Hirtz.

The color of the flowers of both species varies between dark purple and yellow. The sepals of *S. yanganensis* are glabrous or cellular-pubescent within, while the sepals of *S. calantha* are more or less minutely pubescent. What appears to be a variation with densely pubescent sepals is illustrated by Dunsterville in *Venezuelan Orchids Illustrated* and identified as the Brazilian *Stelis calotricha* Schltr.

Except for the integument, the flowers of the two concepts vary little morphologically. The sepals are between two and three millimeters long, broadly ovate, obtuse and three-veined; the petals are transversely ovate and three-veined with a transverse callus; and the lip is type-A with a single, round, dorsal callus. The flowers of *Stelis hallii* are similar except for having single-veined petals without a transverse callus.

424. **Stelis zothecula** Luer, sp. nov.

Ety.: From the Latin *zothecula*, "a small chamber," referring to the small chamber created by the connivent sepals.

Planta mediocris grandisve, racemis paucis multifloris folio elliptico acuto brevioribus, sepalis carnosis obtusis concavis, petalis oblique oblongis concavis, labello minuto oblongo concavo obtuso distinguitur.

Plant medium to large, epiphytic, densely caespitose; roots slender. Ramicauls erect, slender, 7-14 cm long, enclosed by a tubular sheath near the middle and 2-3 sheaths at the base. **Leaf** erect, coriaceous, elliptical, acute, 8-11 cm long including a petiole 1.5-2 cm long, the blade 2-2.3 cm wide, narrowed below into the petiole. **Inflorescence** up to 8 erect, lax, distichous, many-flowered racemes with several flowers open simultaneously, 4-7 cm long including a peduncle 1-2 cm long, subtended by a spathe 5-7 mm long, from an annulus below the apex of the ramicaul; floral bracts infundibular, oblique, inflated, 2.5 mm long; pedicels 0.75-1.5 mm long; ovary 0.5 mm long; **sepals** more or less connivent, green and light brown, glabrous, fleshy, broadly elliptical-ovate, obtuse, concave, the dorsal sepal 1.5 mm long, 0.75 mm wide, 3-veined, connate basally to the lateral sepals, the lateral sepals free, 1.3 mm long, 1 mm wide, 3-veined; **petals** oblong, oblique, concave, obtuse, with the margin thickened, 0.6 mm long, 0.3 mm wide, 1-veined; **lip** type-B, oblong, obtuse, concave, 0.6 mm long, 0.4 mm wide, the bar low, shallowly cleft, the base hinged to the base of the column; **column** stout, 0.5 mm long, the anther apical, proportionately large, the foot obsolescent, the stigma confluent.

ECUADOR: **Tungurahua**: Sendero Triunfo, Sector El Playón, alt. 3050 m, 3 Mar. 1989, *Ximena Buitrón 459* (Holotype of *S. zothecula*: US), C. Luer illustr. 17218.

This species, apparently endemic at a high altitude in the mountains of eastcentral Ecuador, is characterized by minute flowers borne by several, laxly flowered racemes that are shorter than the leaves. The tiny, obtuse sepals are fleshy, concave and connivent. The petals are oblique, oblong, concave and single-veined. The minute lip is oblong, obtuse and concave above a shallowly cleft bar.

Revised Species

281., **281 revised. Stelis protuberans** Luer & Hirtz, Monogr. Syst. Bot. Missouri Bot. Gard. 112: 45, 2007.

Ety.: From the Latin *protuberans*, "protuberant," referring to the bulging bases of the sepals.

Plant large, epiphytic, caespitose; roots slender. Ramicauls erect, stout, 8-10 cm long, enclosed by a loose, tubular sheath from near the middle and 2-3 other imbricating sheaths below. **Leaf** erect, coriaceous, elliptical, subacute to obtuse, 7-9 cm long including the petiole 1-2.5 cm long, 2-3 cm wide, cuneate below into the petiole. **Inflorescence** an erect, subdense, distichous, many-flowered raceme with several to many flowers open simultaneously, to 15 cm long including the peduncle ca. 2 cm long, subtended by a spathe ca. 1 cm long, from an annulus below the apex of the ramicaul; floral bracts with revolute margins, oblique, acute, 4-7 mm long; pedicels 2-3 mm long; ovary 2 mm long; **sepals** purple-brown externally, light olive-green within, glabrous, ovate, acute, the bases connate and convex 1.5 mm to form a hemispherical protuberance, the dorsal sepal 6.5 mm long, 4.25 mm wide, 5-veined, the lateral sepals adherent, but soon separate, 5 mm long, 4.25 mm wide, 5-veined; **petals** light green, transversely ovate, shallowly concave with a transverse callus, 1 mm long, 2 mm wide, 4-veined, the apex broadly rounded with the margin thickened; **lip** light green, transversely ovate, 1 mm long, 1.5 mm wide, 0.75 mm deep, shallowly concave anteriorly within the broadly rounded, apical margin, the bar convex with a rounded glenion, the dorsum with 3 calli, base truncate, hinged to the base of the column; **column** stout, 1 mm long, 1.5 mm wide, the foot obsolescent, the anther and the bilobed stigma apical.

ECUADOR: **Imbabura**: Buenos Aires, alt. 2800 m, collected by and flowered in cultivation, Aug. 2004, by *A. Hirtz 8972* (Holotype of *Stelis protuberans*: MO), C. Luer illustr. 20886, not *A. Hirtz 8792*.

Two collections by Hirtz with similar numbers (*8792* and *8972*) were inadvertently transposed when the illustration of *8792* was applied to *8972*. The revised description and illustration of *Stelis protuberans* are presented hereby.

Fig. 281 revised. Stelis protuberans

SPECIES EXCLUDED

Stelis alba Kunth, Nov. Gen. Sp. 1: 363, 1816.

Ety.: From the Latin *albus*, "white," referring to the flower.

Stelis alba was described by Kunth in 1817 from a collection near Popayán in southern Colombia by Humboldt and Bonpland. In his *Folia Orchidacea* of 1858, Lindley cited a collection near Loja in southern Ecuador by Hartweg, and another by himself as *R. 76* without locality. Rehydration of a flower from Lindley's collection reveals it to be *Stelis pusilla* Kunth.

In Kunth's description of *Stelis alba* the ramicaul is three centimeters long, the leaf is five centimeters long and about two centimeters wide, and the raceme is ten centimeters long. The description of the flower is scanty. The sepals are white, glabrous, ovate-oblong, acute, and three millimeters long; the petals are simply minute; and the lip is simply "concave."

The illustration of a flower by Elmer Smith, presumably from the type and identified as *Stelis alba*, was published by Garay, 1980. The petals are 3-veined, and the lip is Type-B with a broad, triangular apex. I have seen no collection that agrees with the above details.

Stelis lloënsis Schltr., Repert. Spec. Nov. Regni Veg. Beih. 8: 53, 1921.

Ety.: Named for the community of Lloa, near where the species was collected in the subandine valley of Lloa near Quito, Feb. 1909, *A. Mille s.n.* (holotype of *S. lloënsis* destroyed at B).

The specimen collected near Quito by Father Millé a century ago, and described by Schlechter as *Stelis lloënsis* was lost at B. No duplicate collections are known. In Father Sodiro's herbarium in Quito at QPLS, six of Millé's collections of *Stelis* are identified, but *S. lloënsis* is not among them. A neotype cannot be designated, because no specimen agreeing with Schlechter's description and drawing has been found.

Stelis lloënsis is similar both vegetatively and florally to *S. poculifera* Luer & Hirtz, *Icones Pleuroth.* 24, Part One, Fig. 98., but differs from the former by having only single-veined petals, instead of three-veined petals

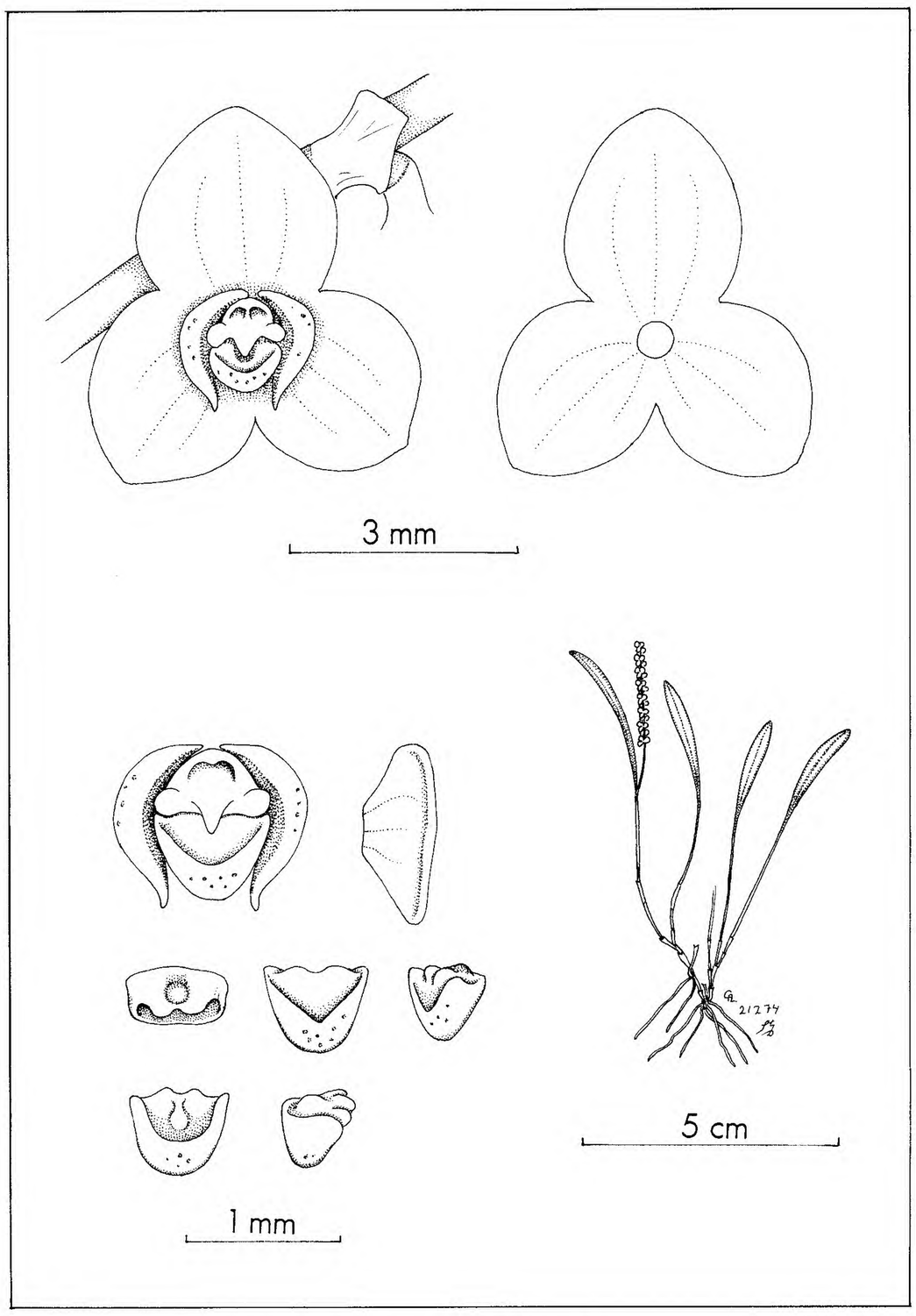


Fig. 348. Stelis aclyda

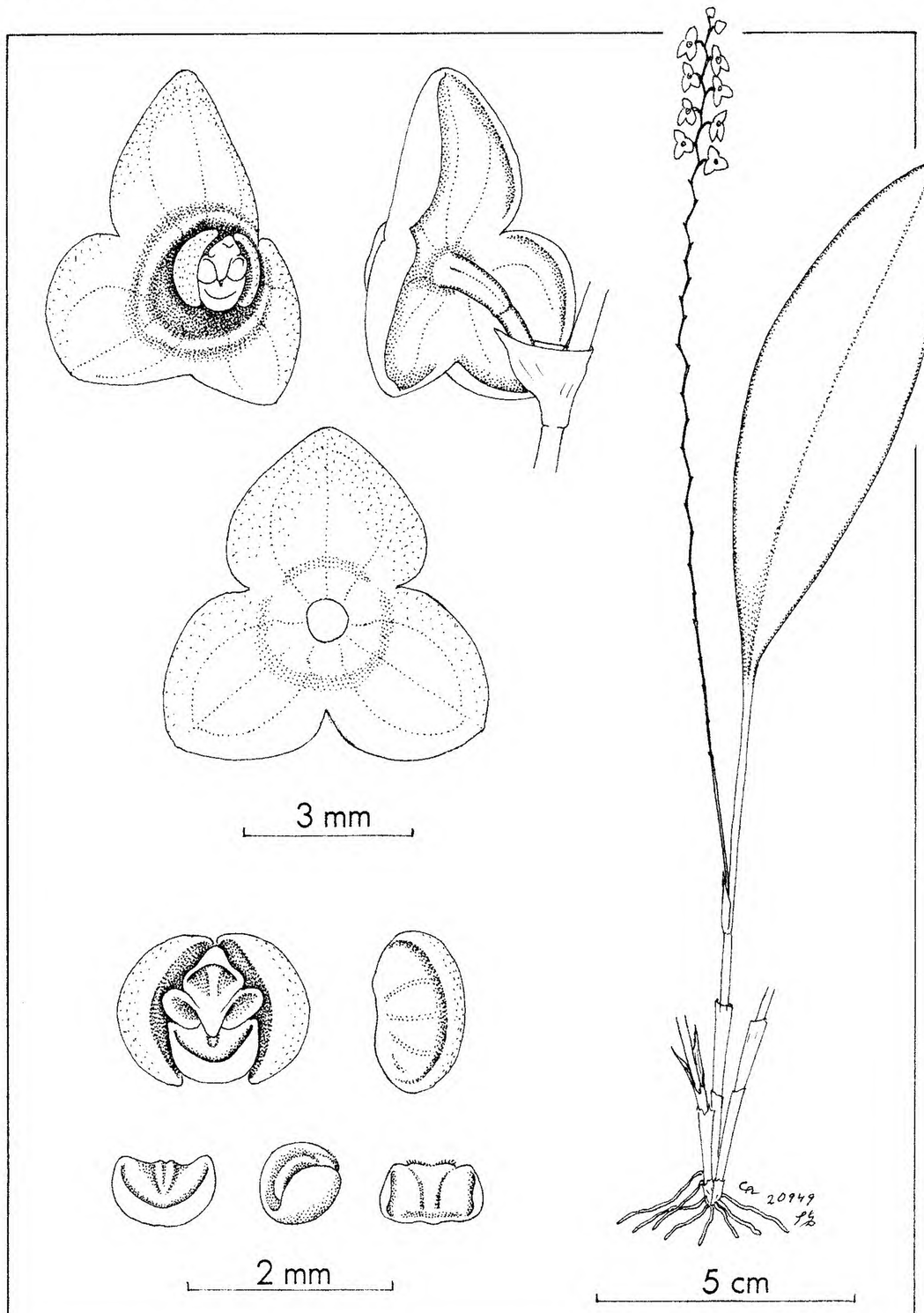


Fig. 349. Stelis aglochis

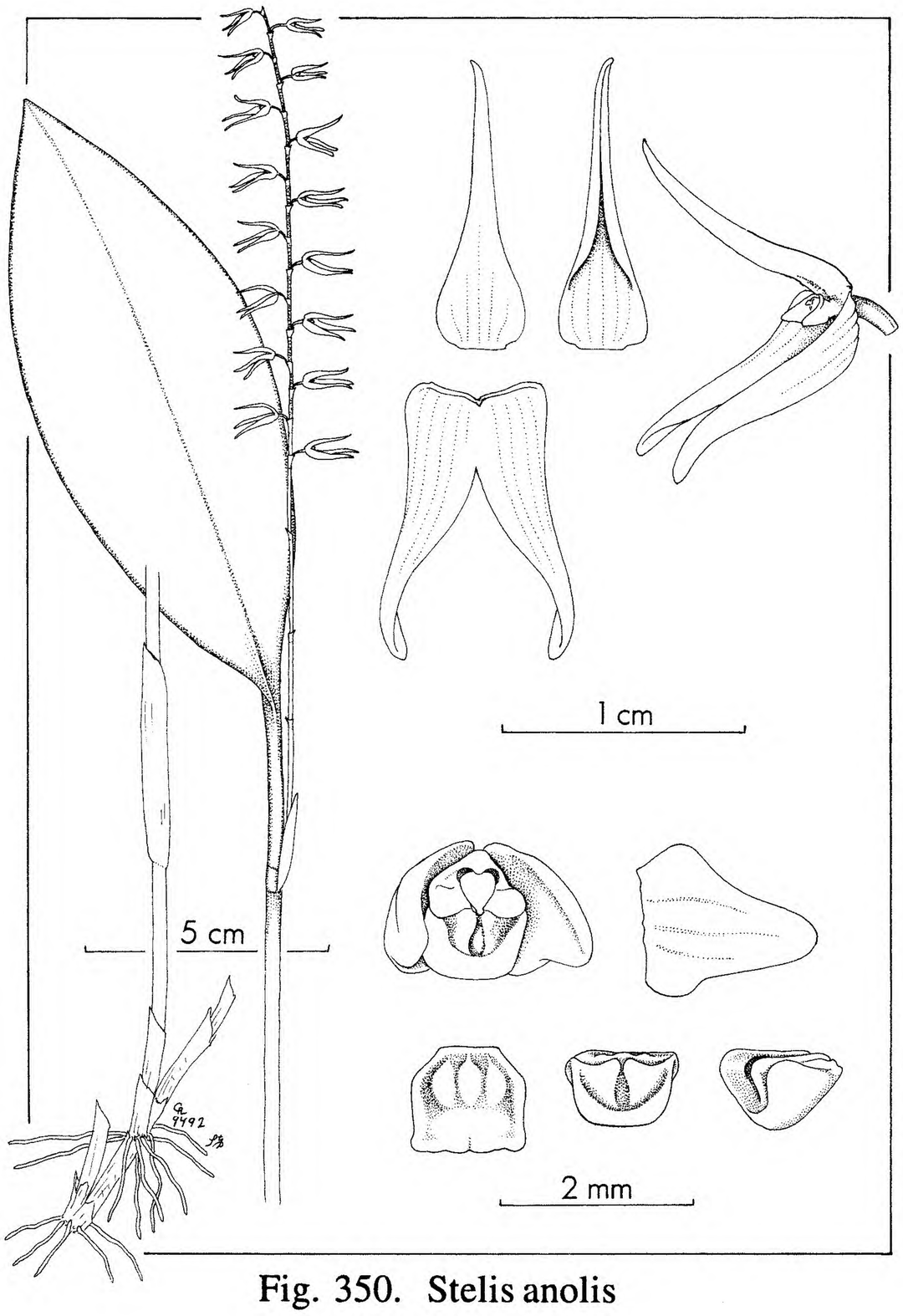


Fig. 350. Stelis anolis

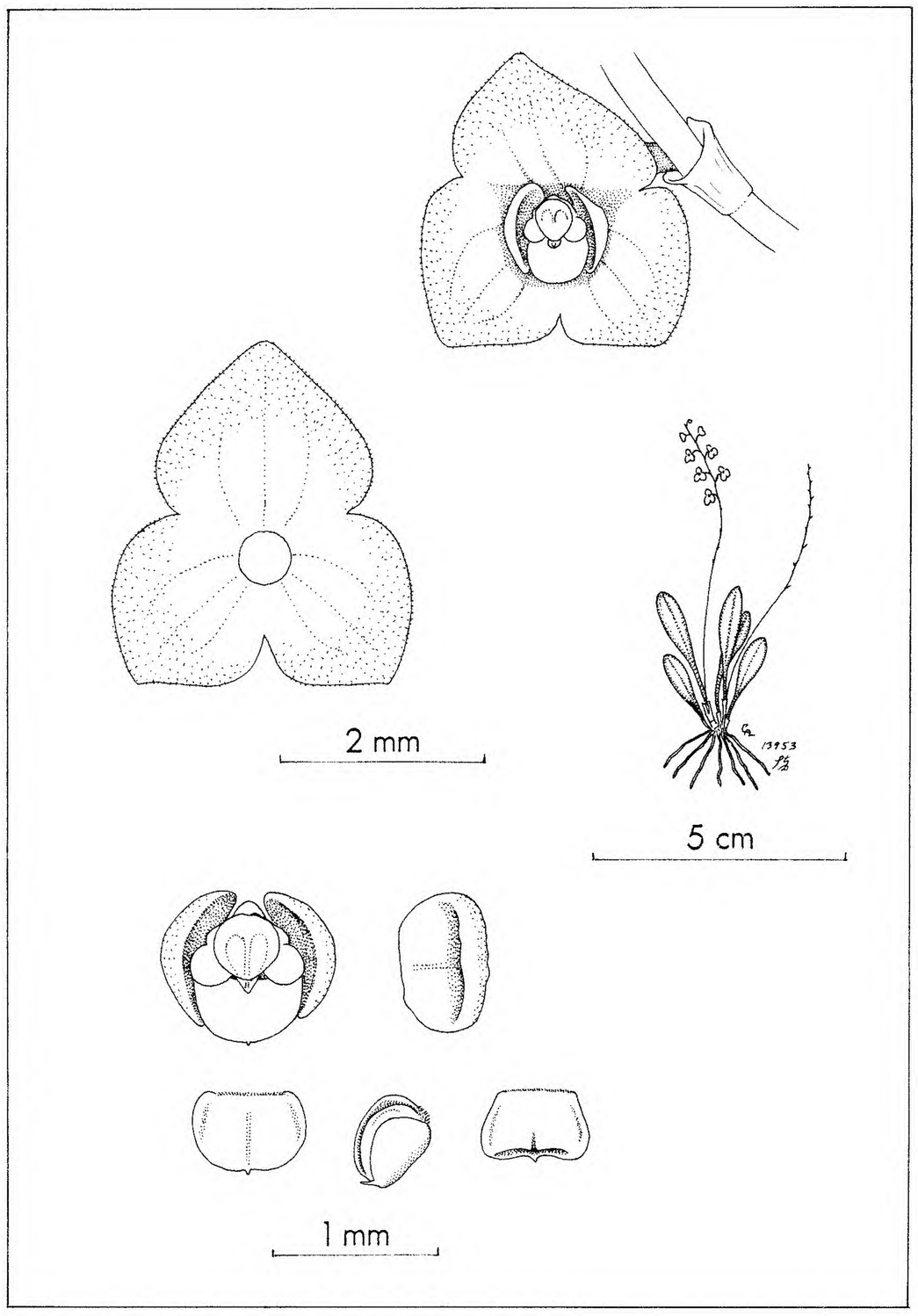


Fig. 351. Stelis apiculifera

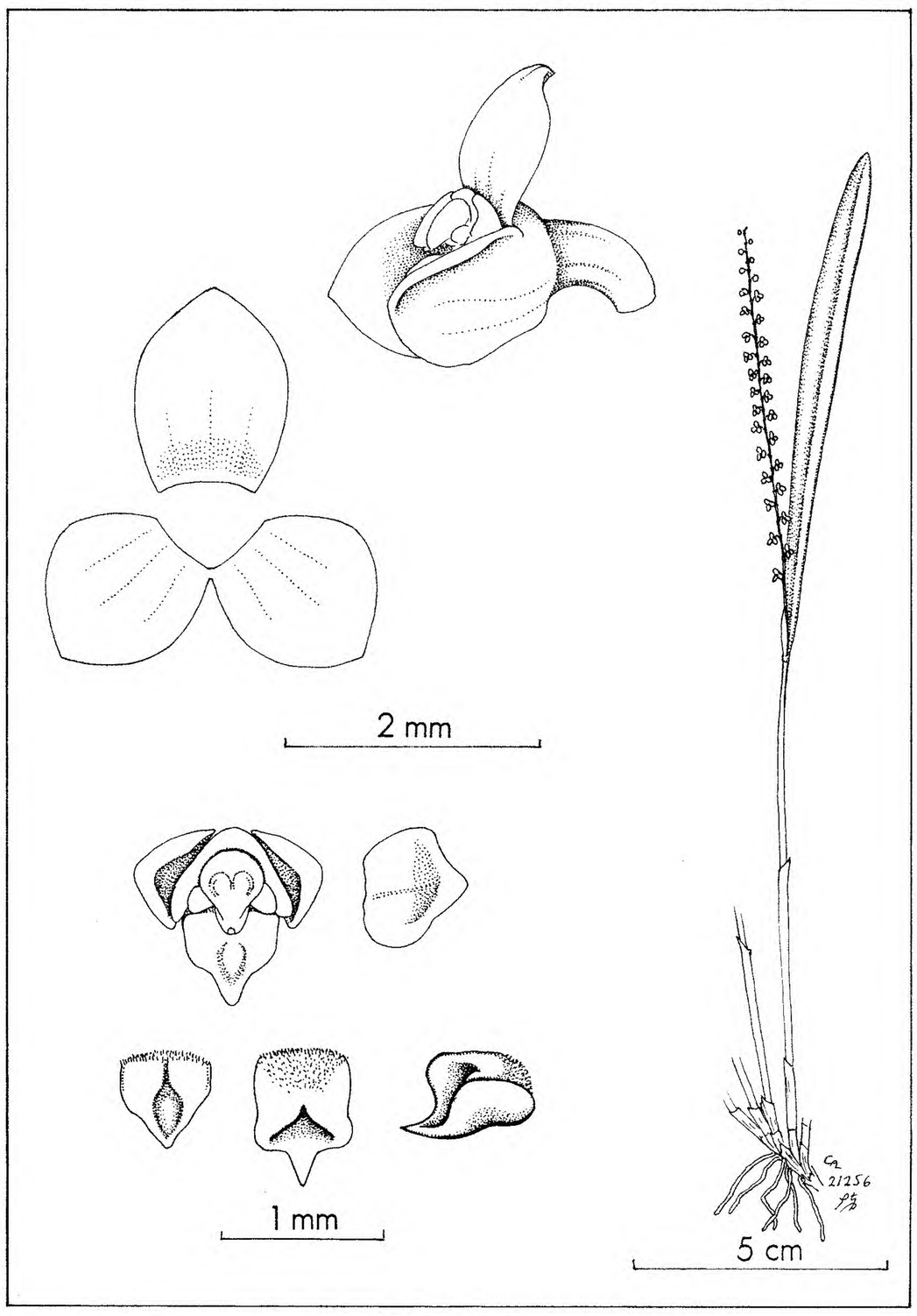


Fig. 352. Stelis aprica

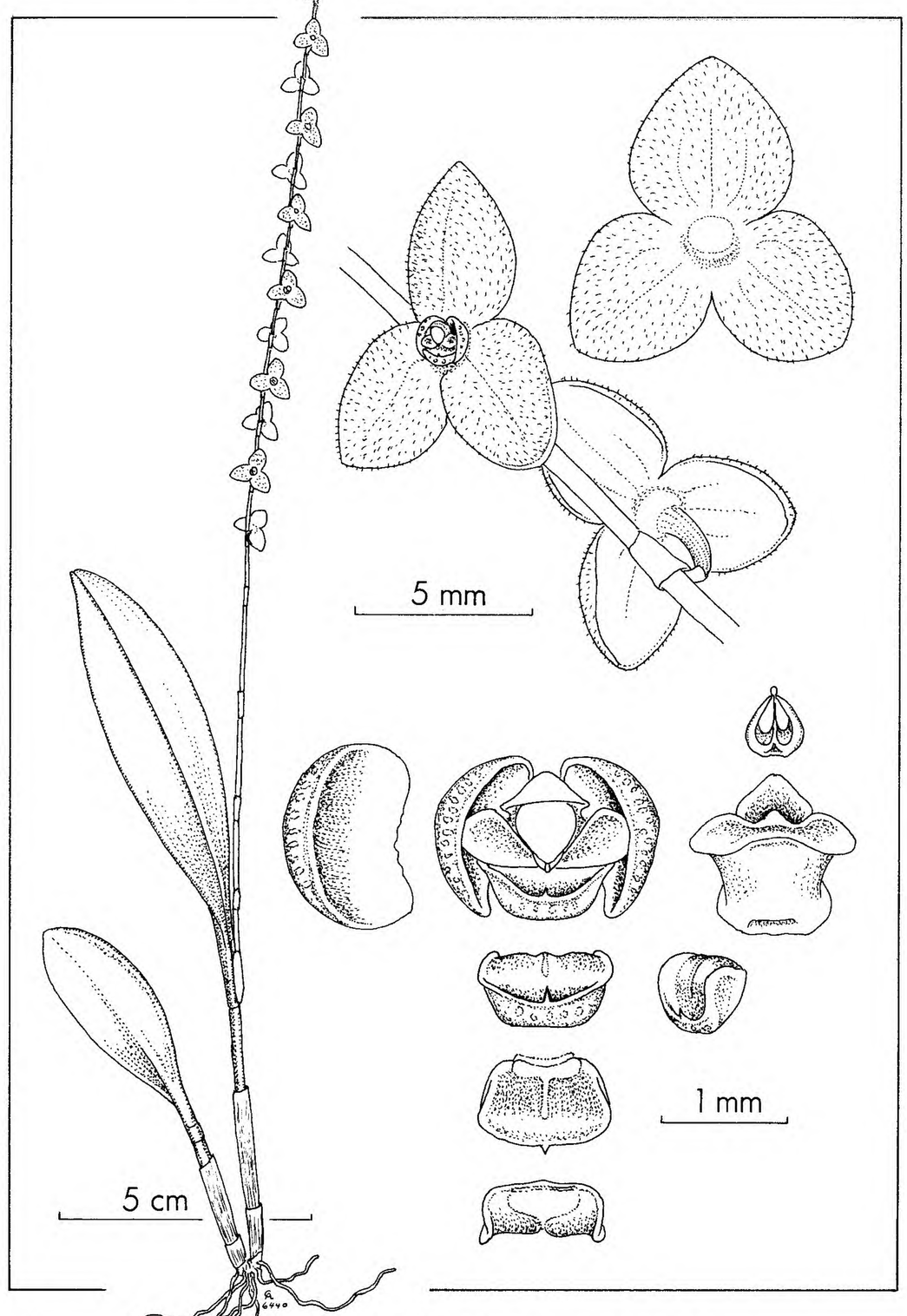


Fig. 353. Stelis argentata

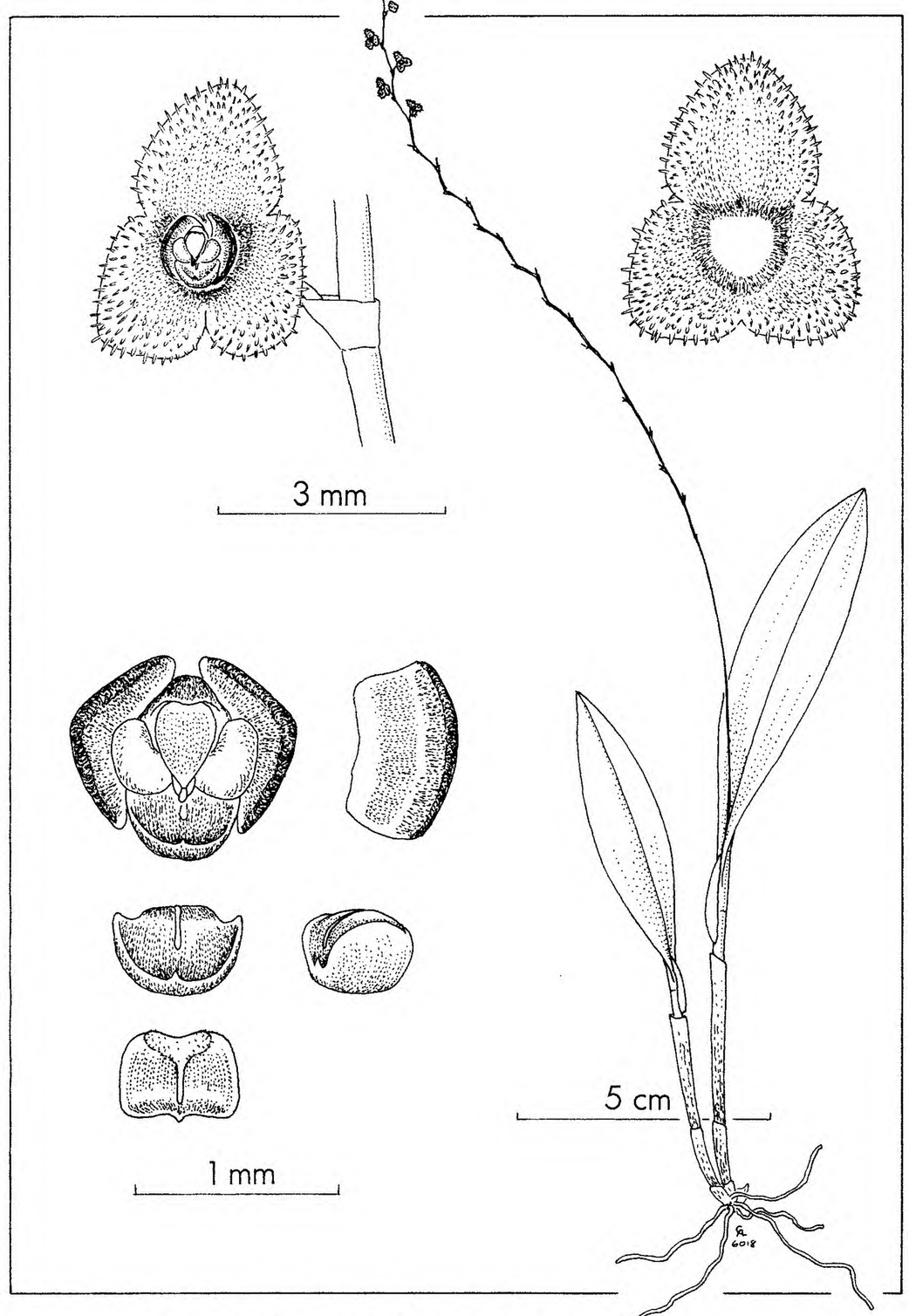


Fig. 353a. Stelis argentata

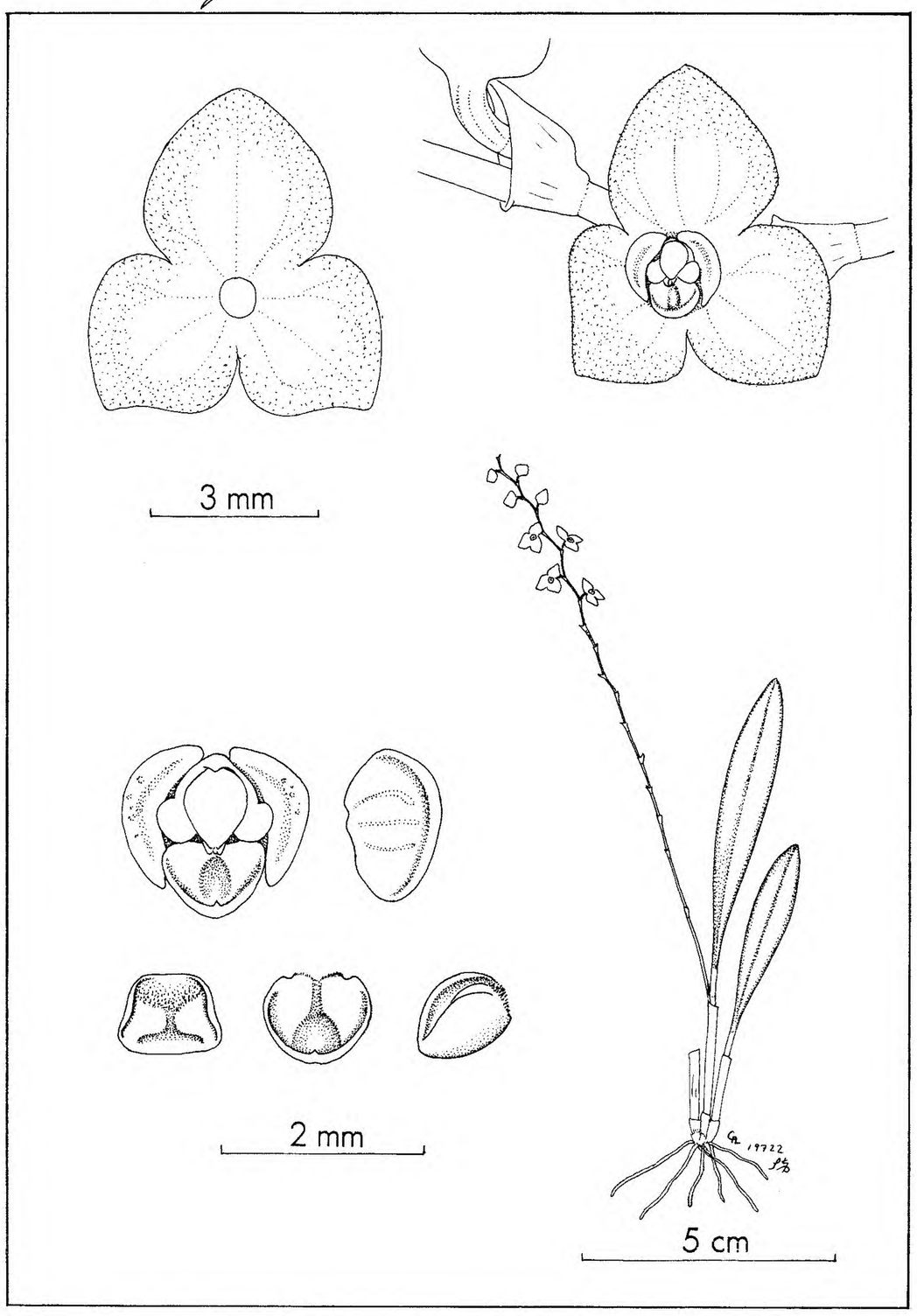


Fig. 353b. Stelis argentata

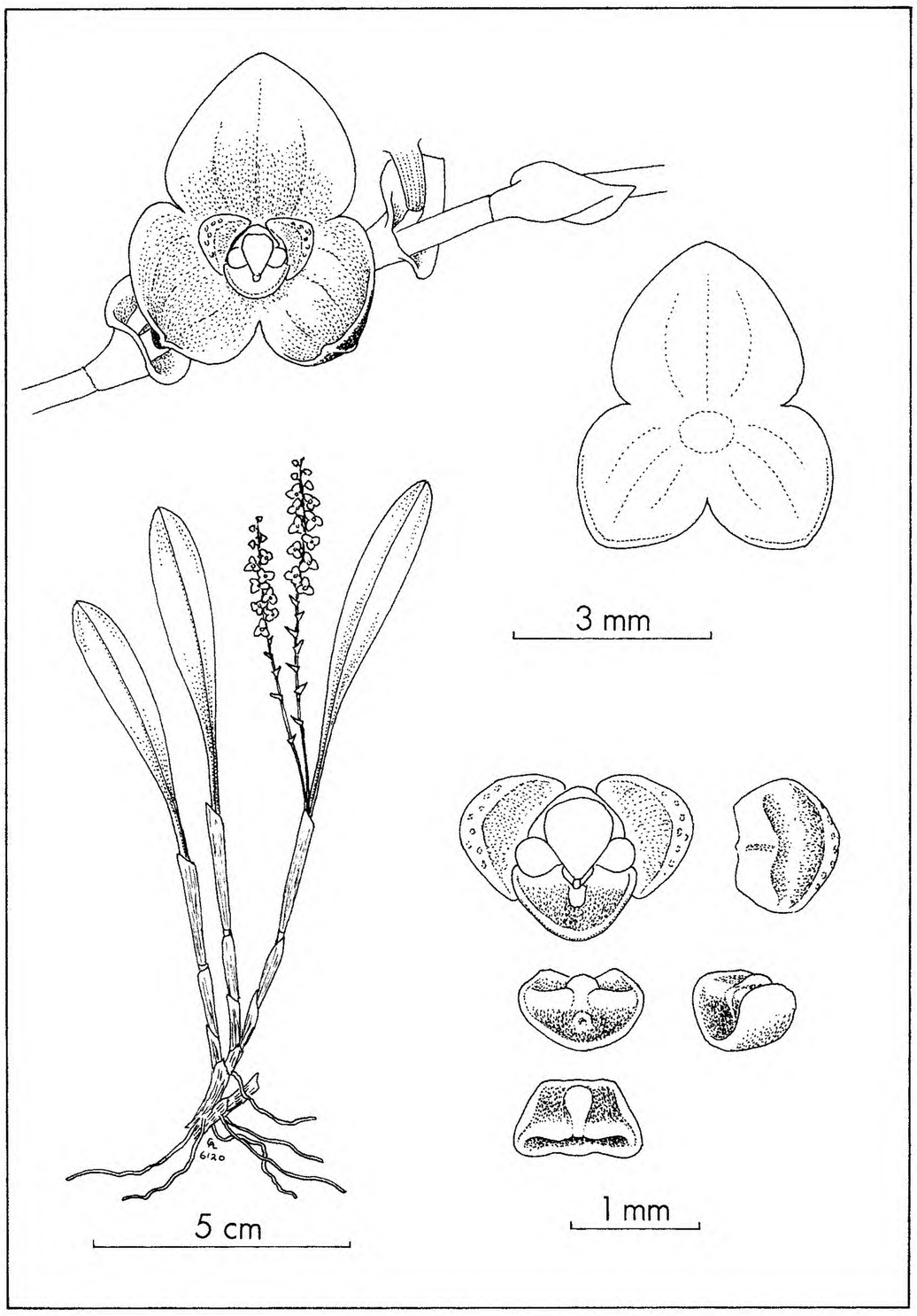


Fig. 152a. Stelis atra

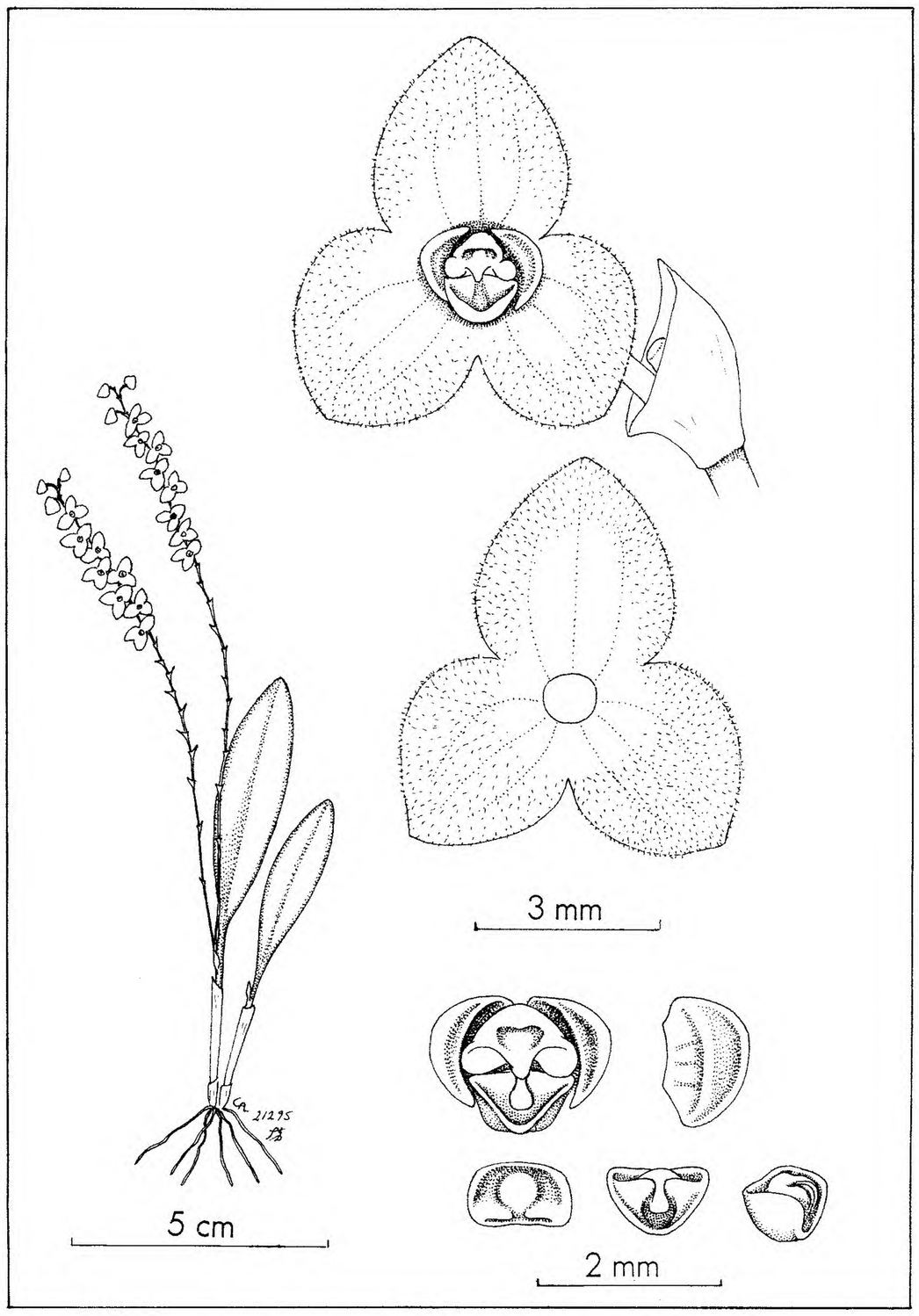


Fig. 354. Stelis azuayensis

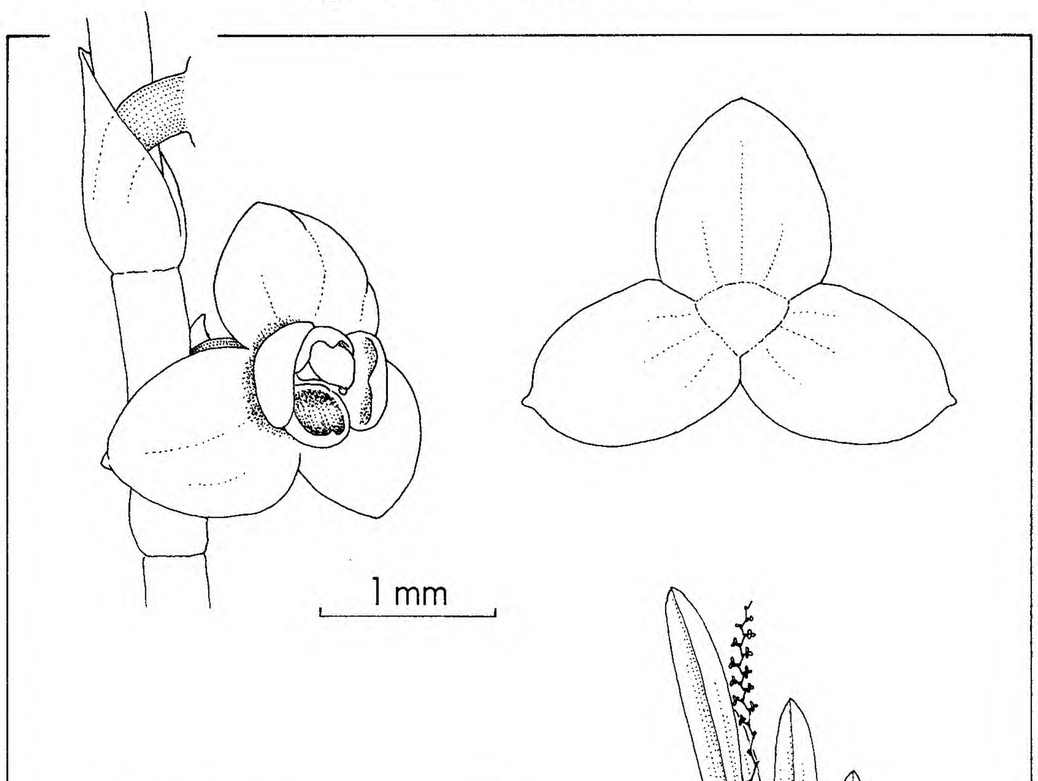


Fig. 355. Stelis braccata

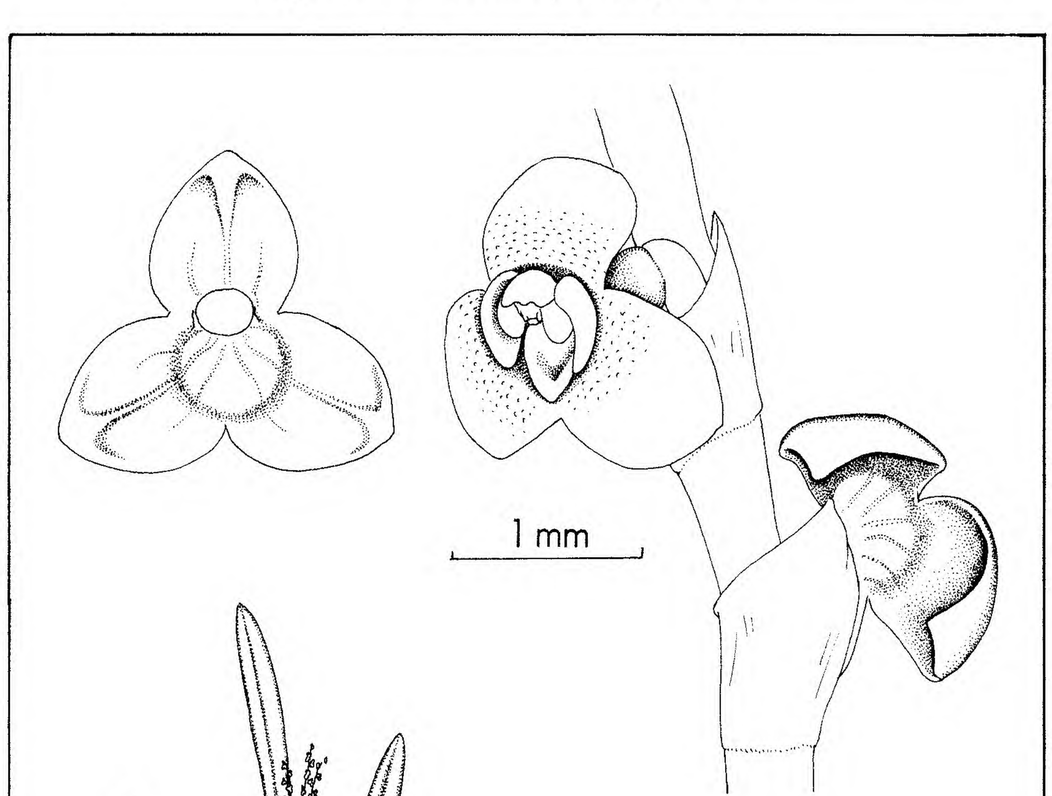


Fig. 355a. Stelis braccata

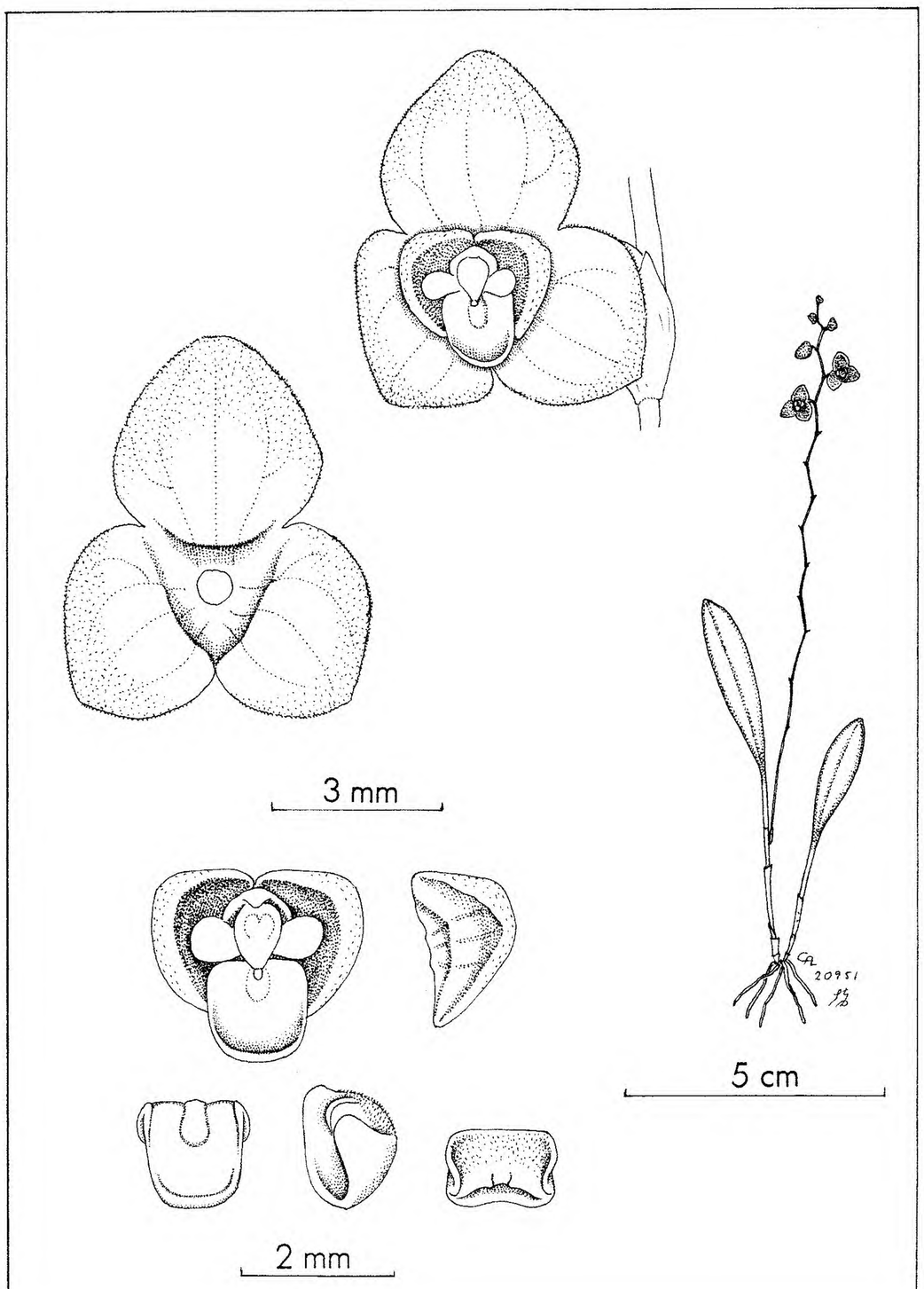


Fig. 356. Stelis carta

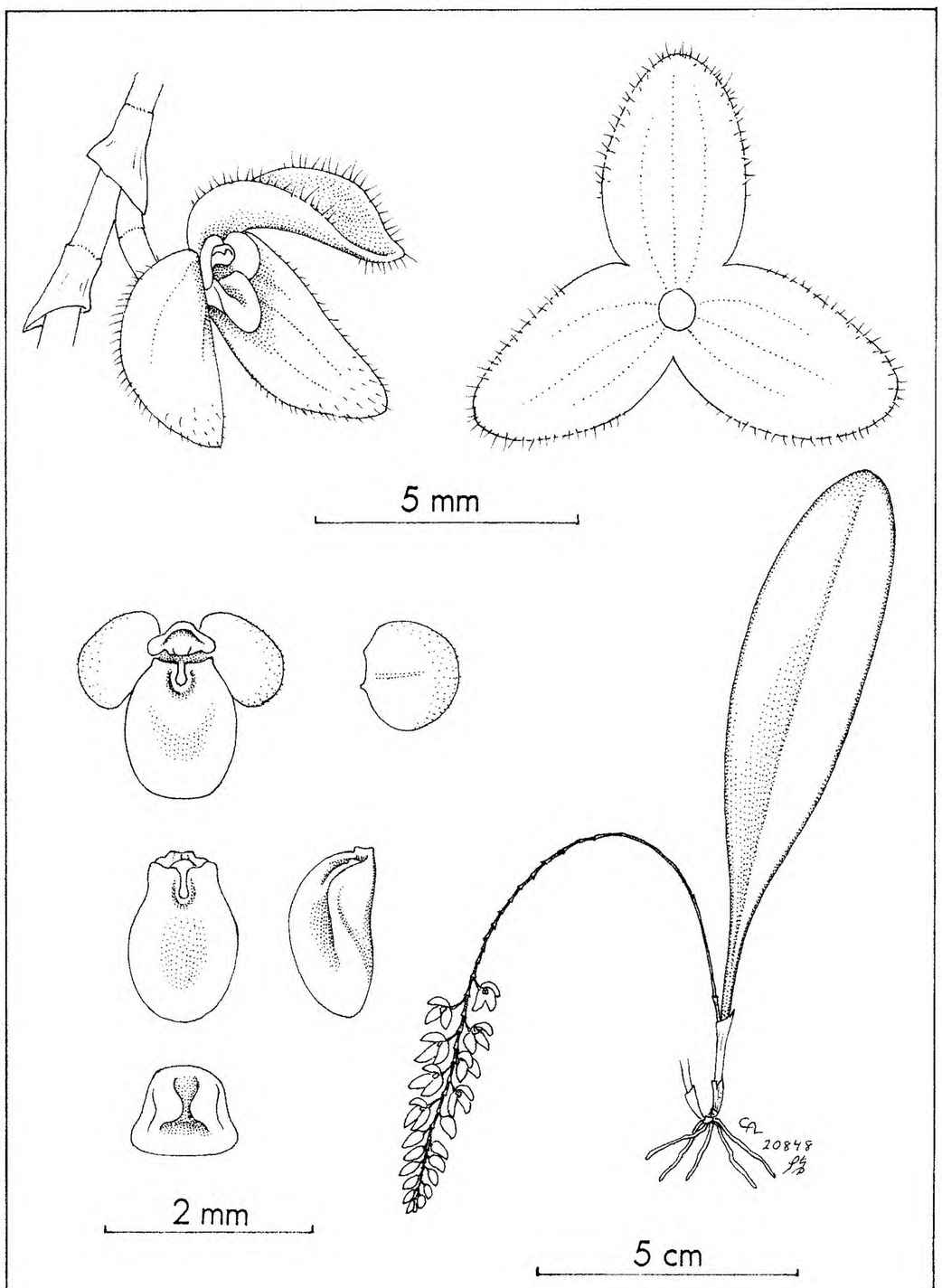


Fig. 357. Stelis ciliaris

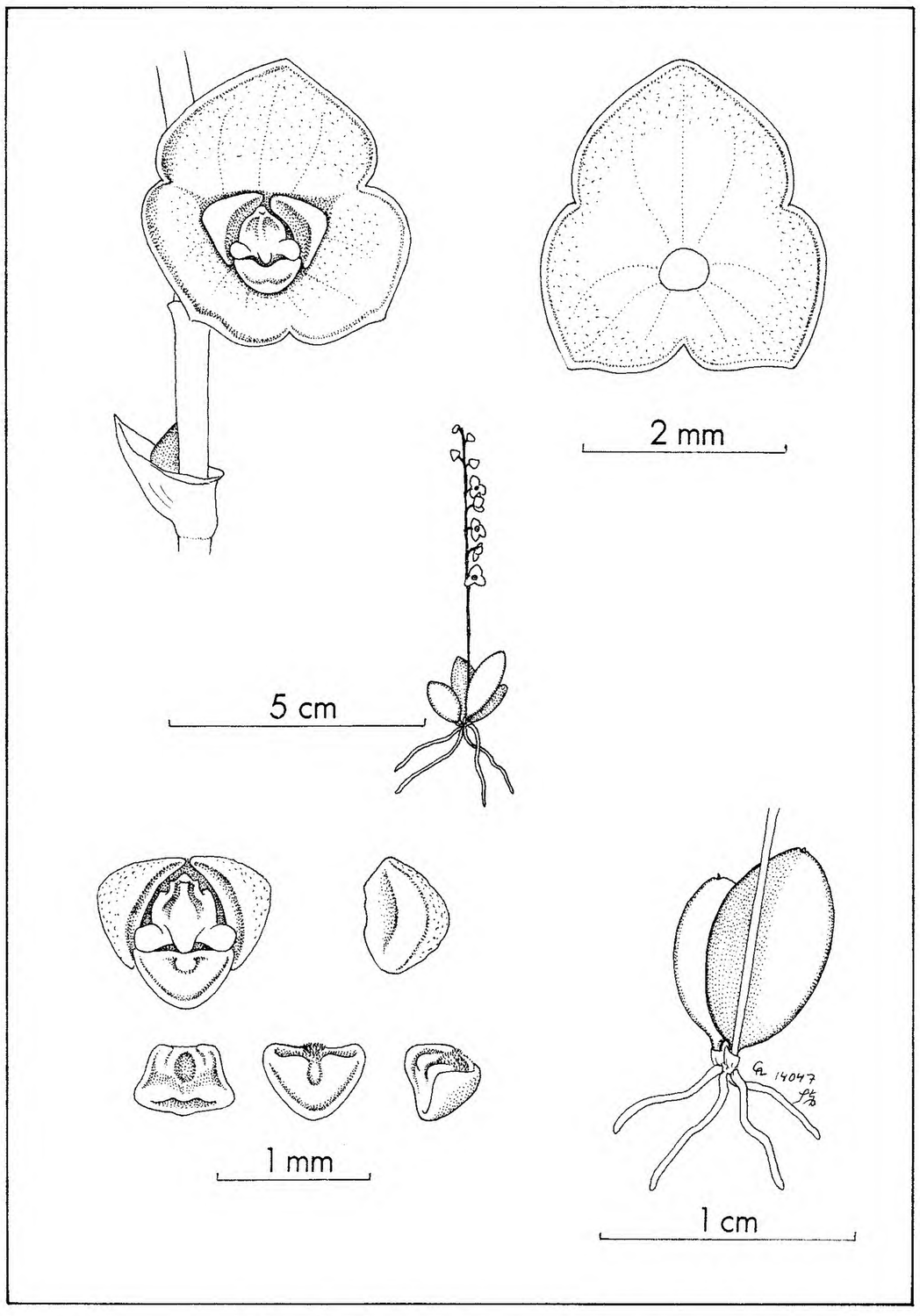


Fig. 358. Stelis coarctata

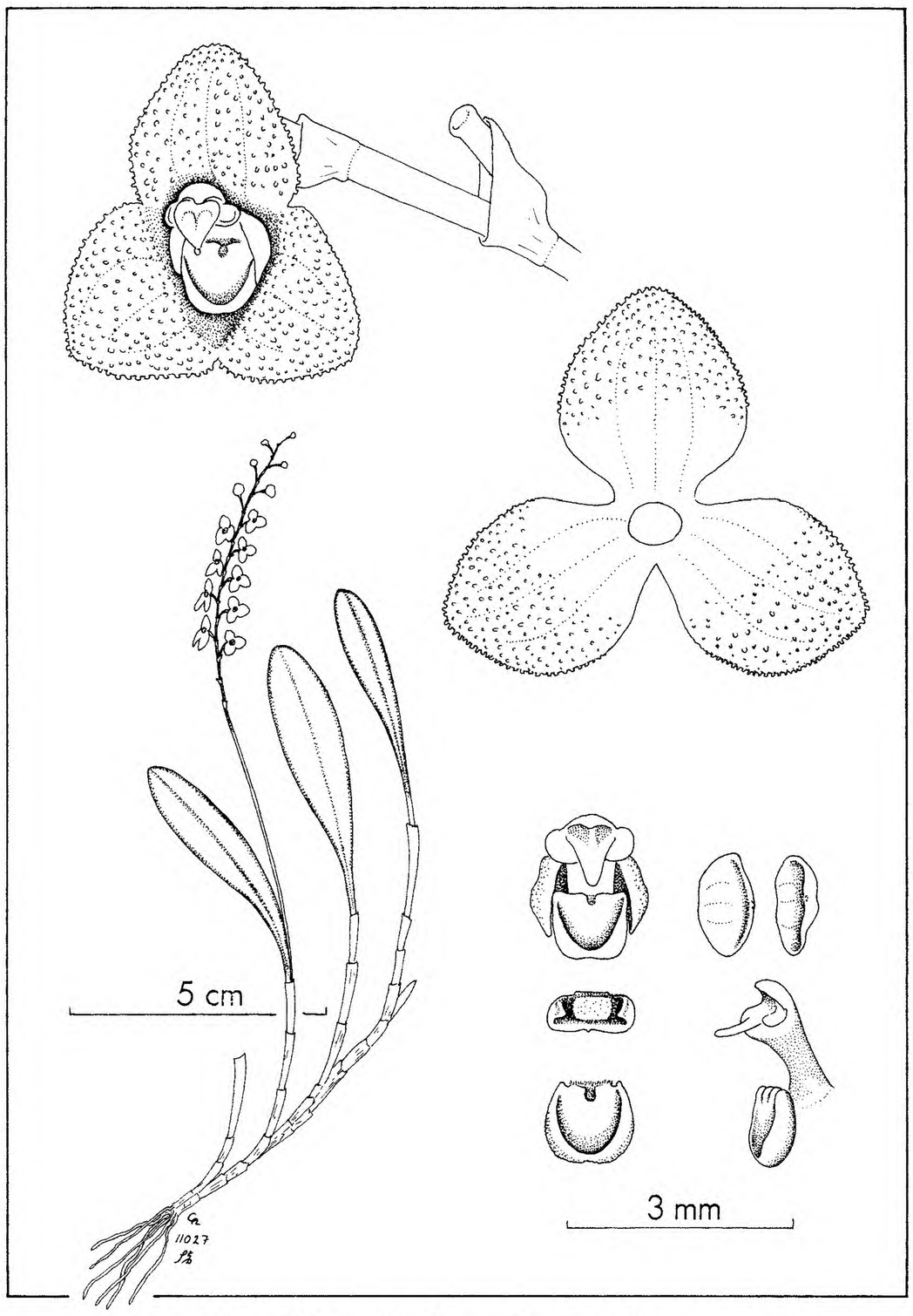


Fig. 359. Stelis columnaris

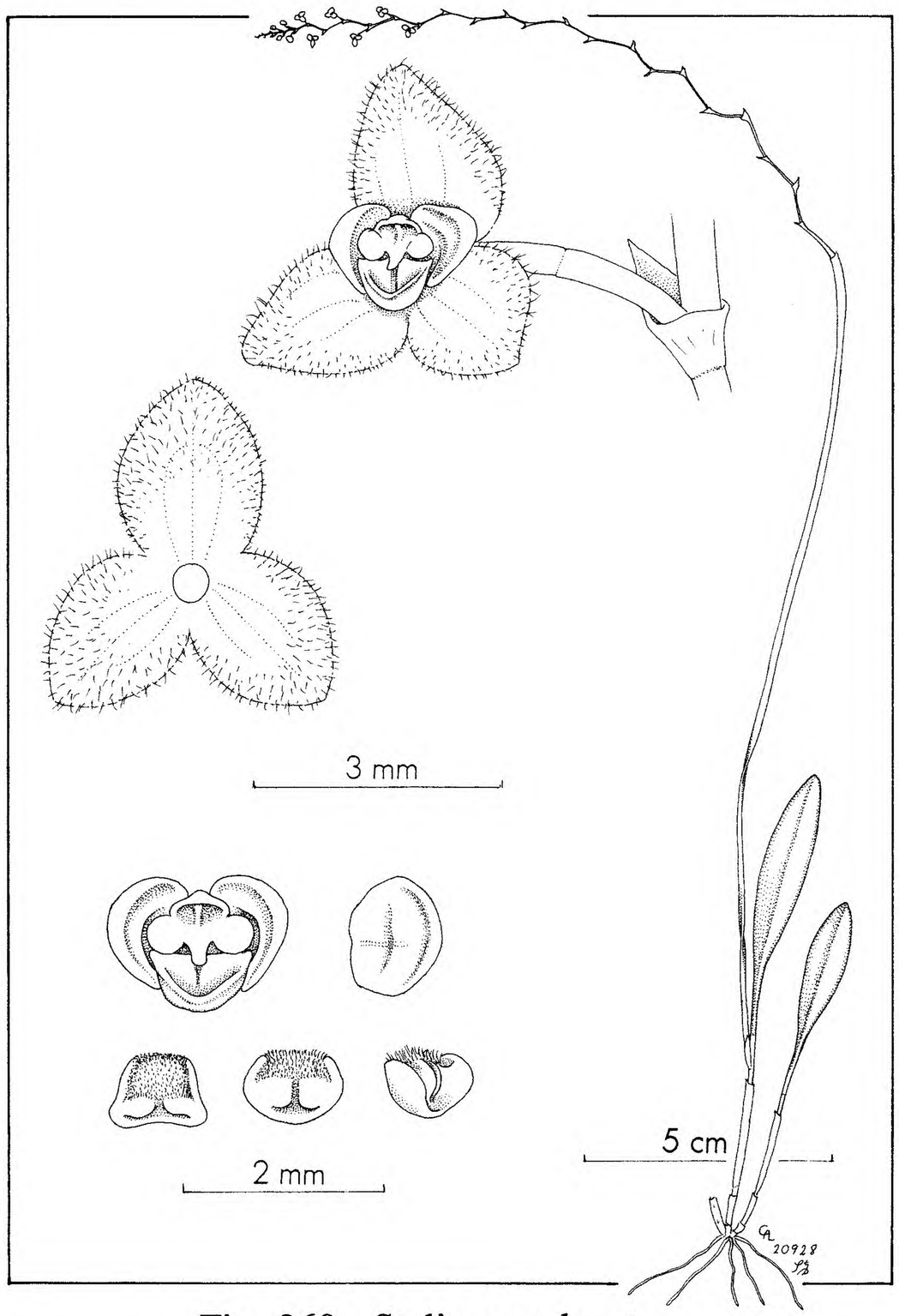


Fig. 360. Stelis complanata

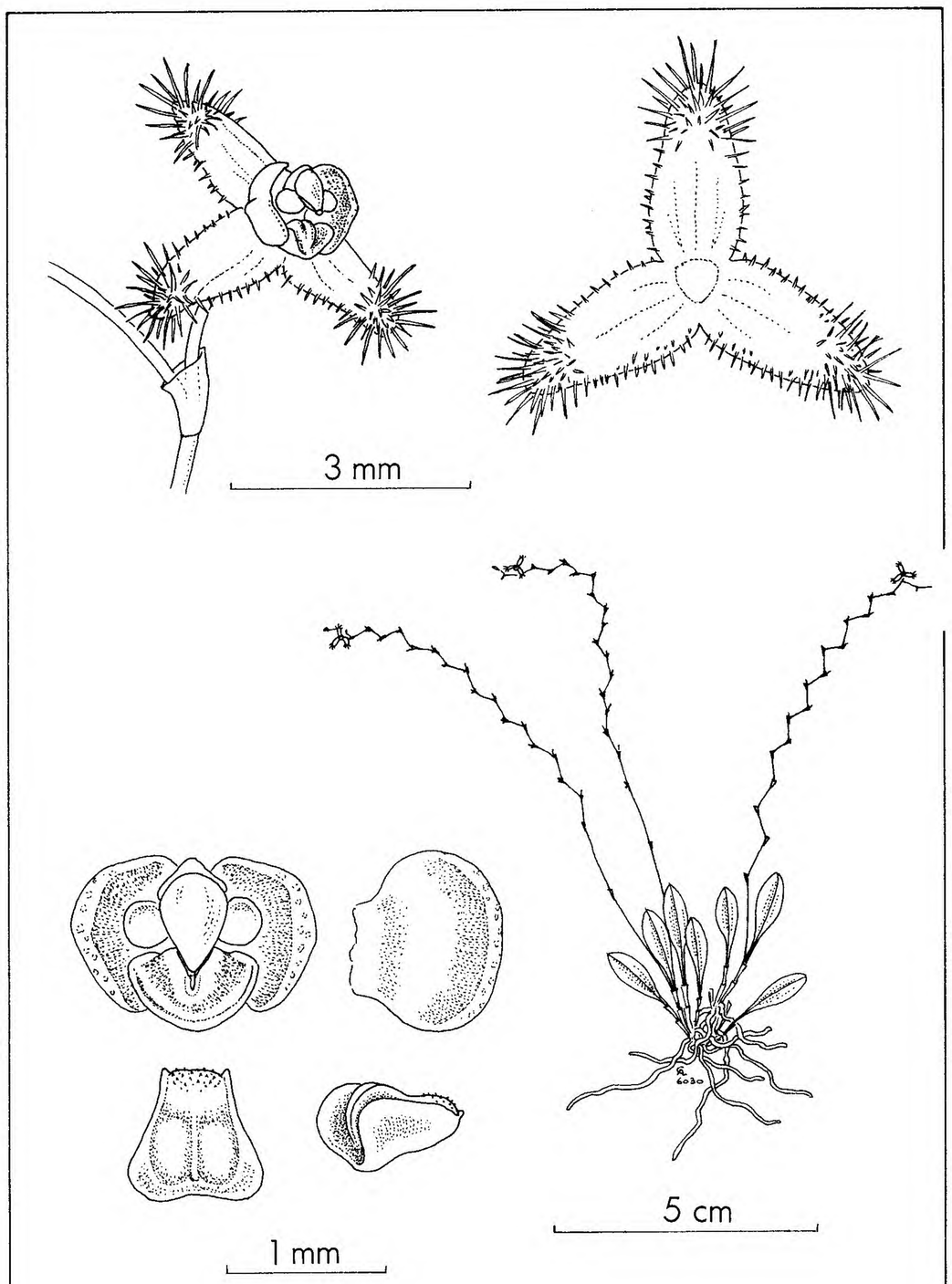


Fig. 67a. Stelis concinna

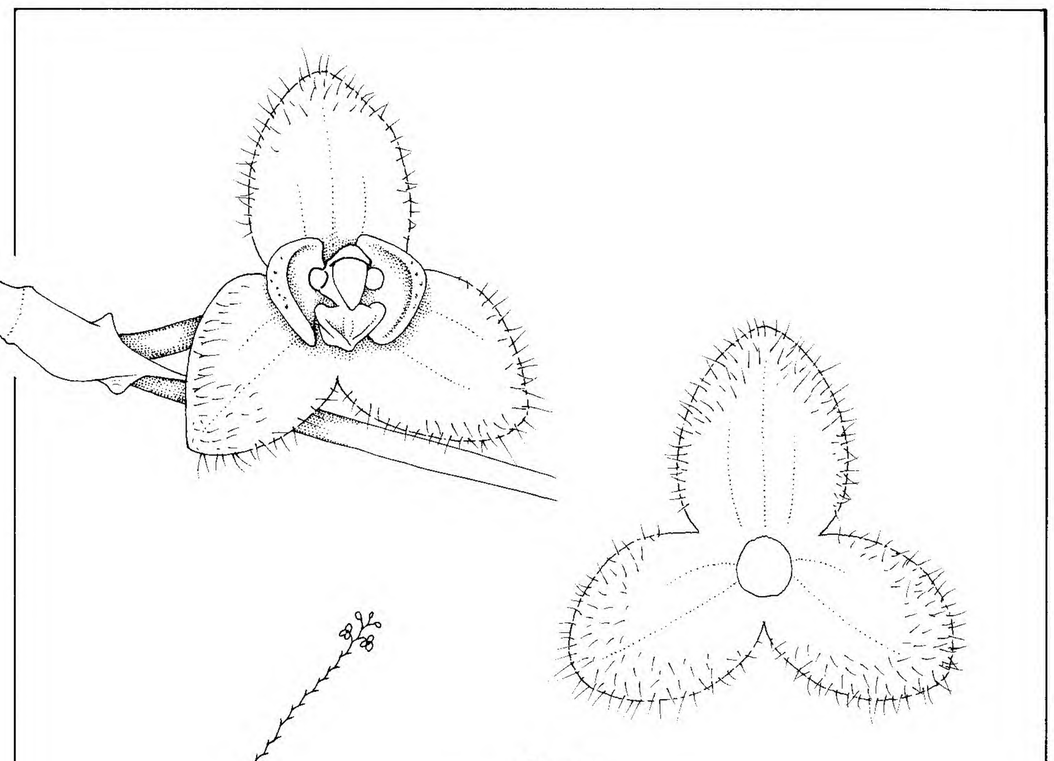


Fig. 67b. Stelis concinna

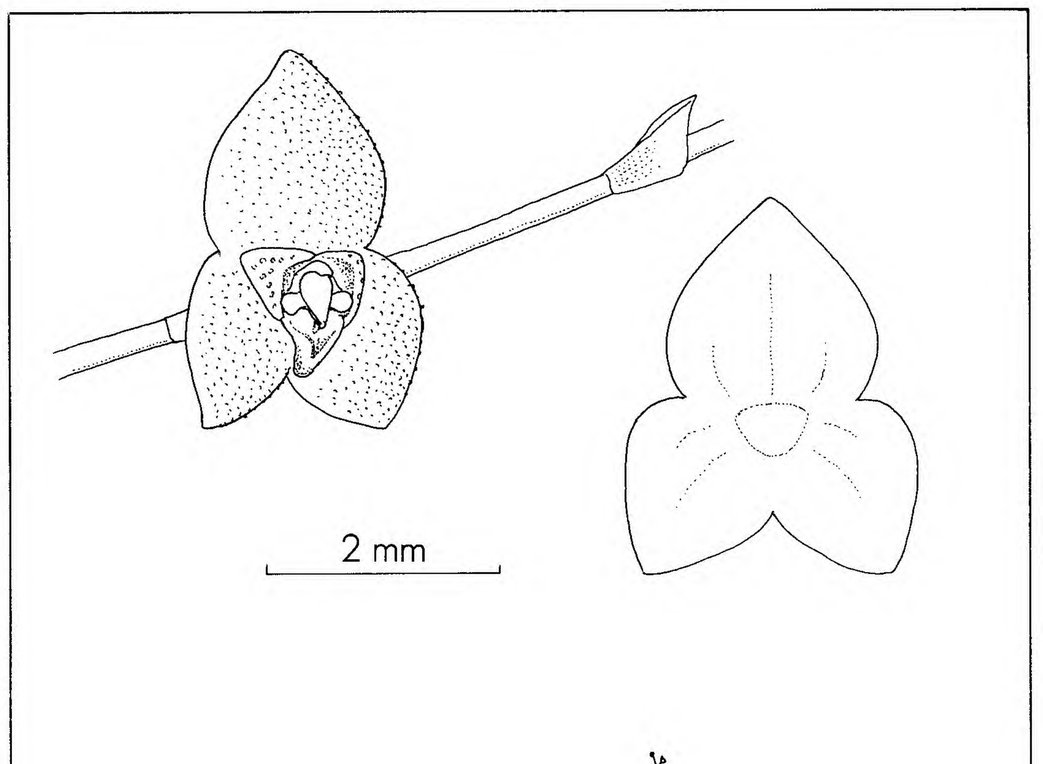


Fig. 361. Stelis debilis

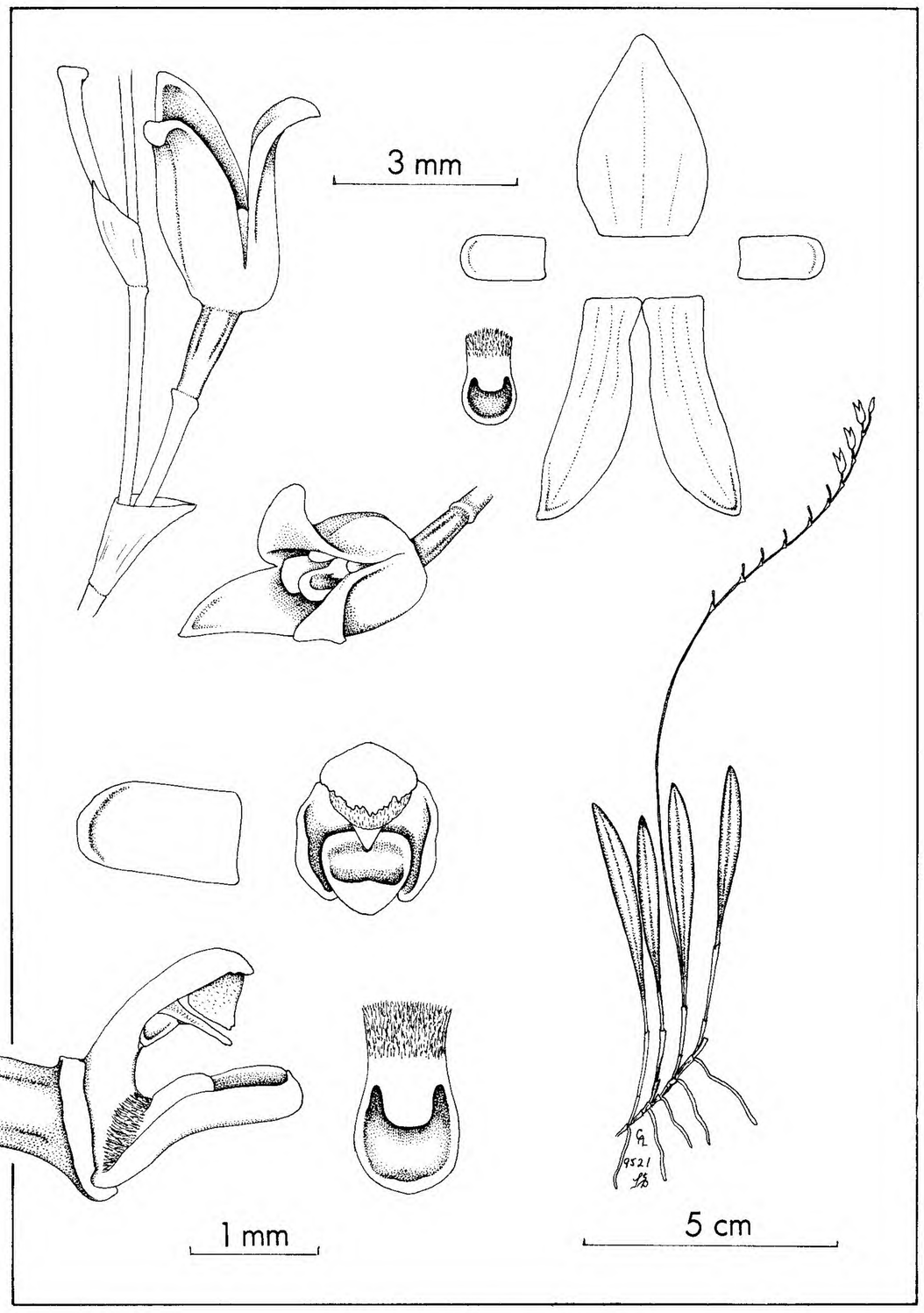


Fig. 362. Stelis declivis

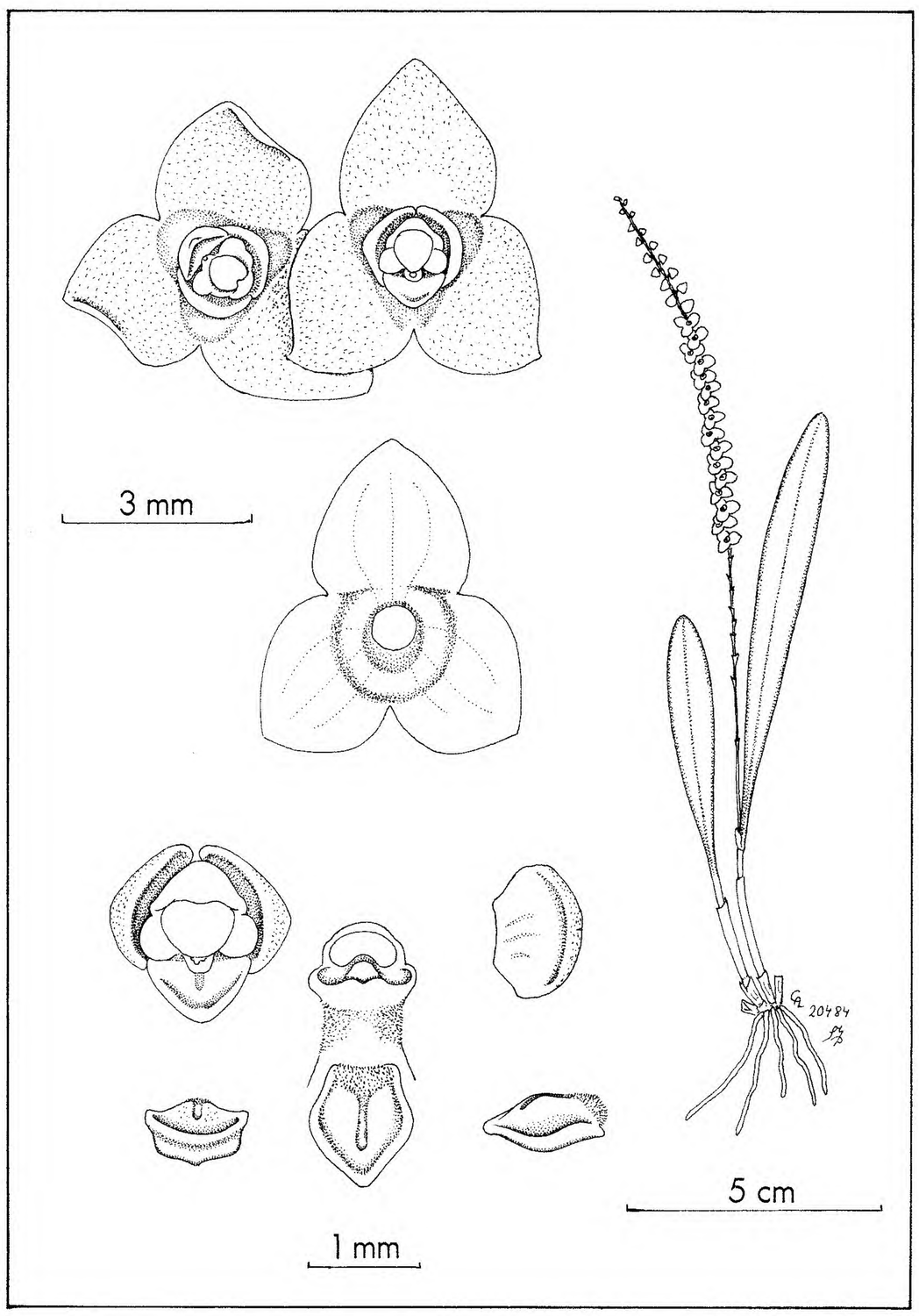


Fig. 363. Stelis discolor

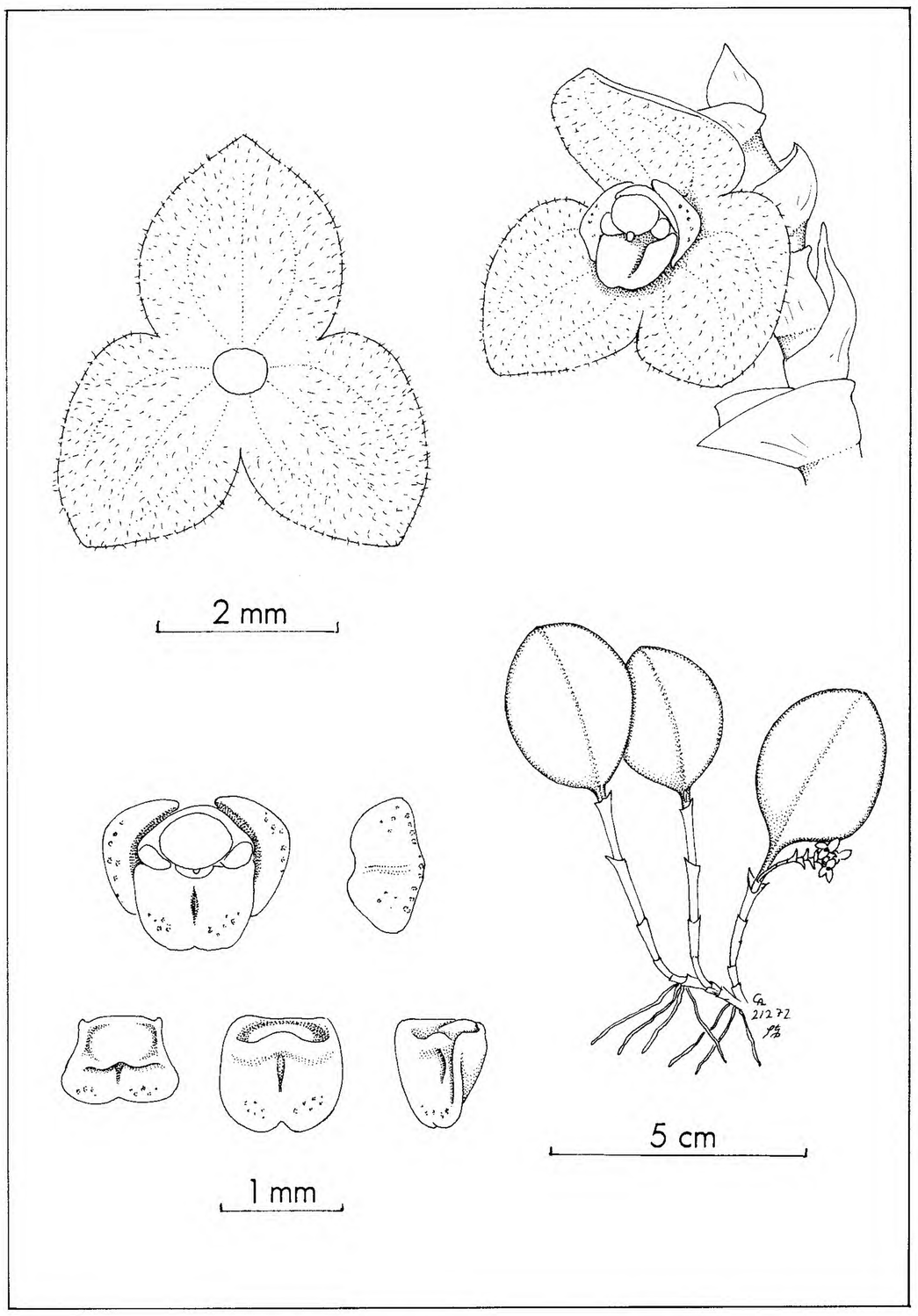


Fig. 364. Stelis discophylla

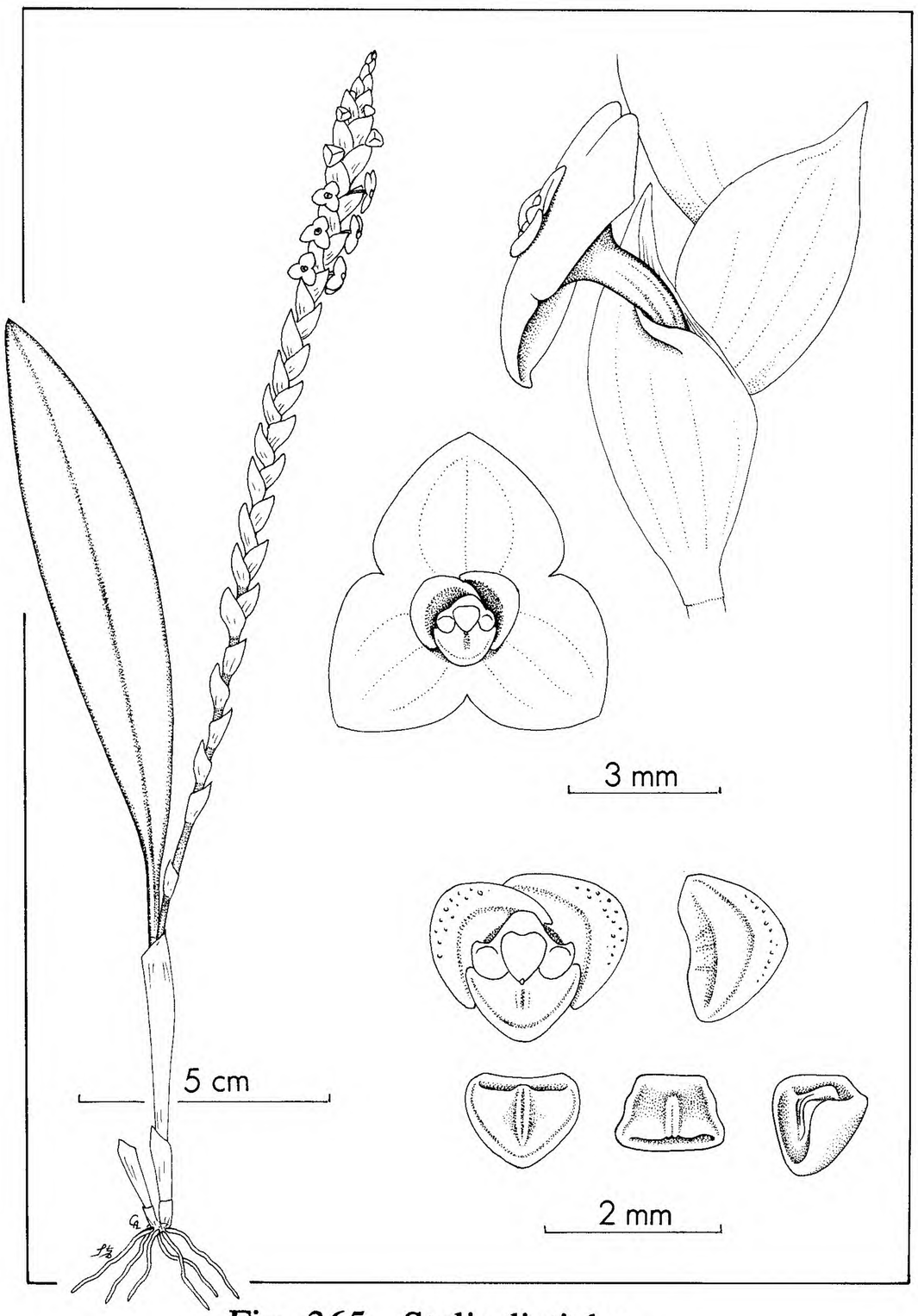


Fig. 365. Stelis disticha

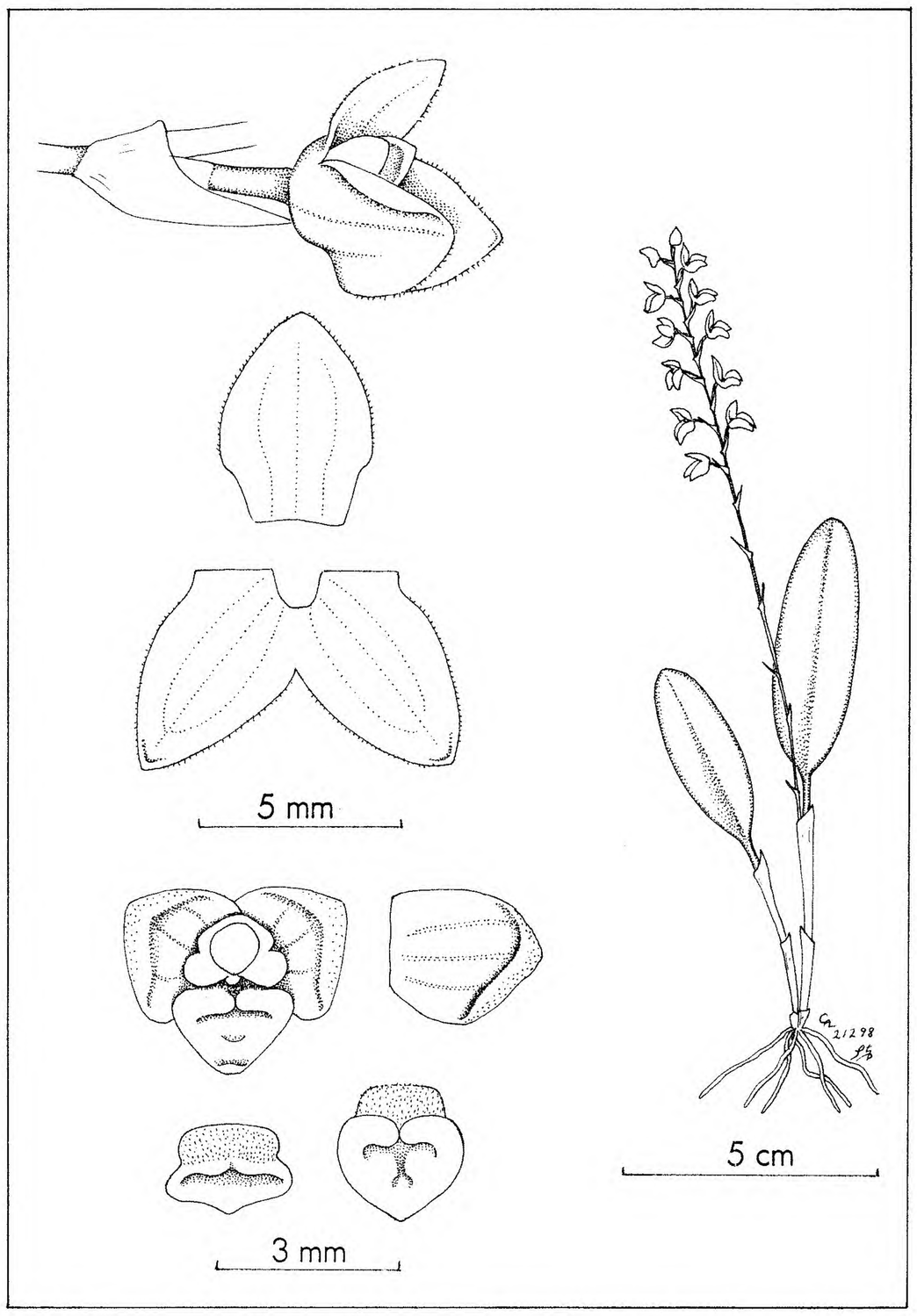


Fig. 366. Stelis donaxopetala

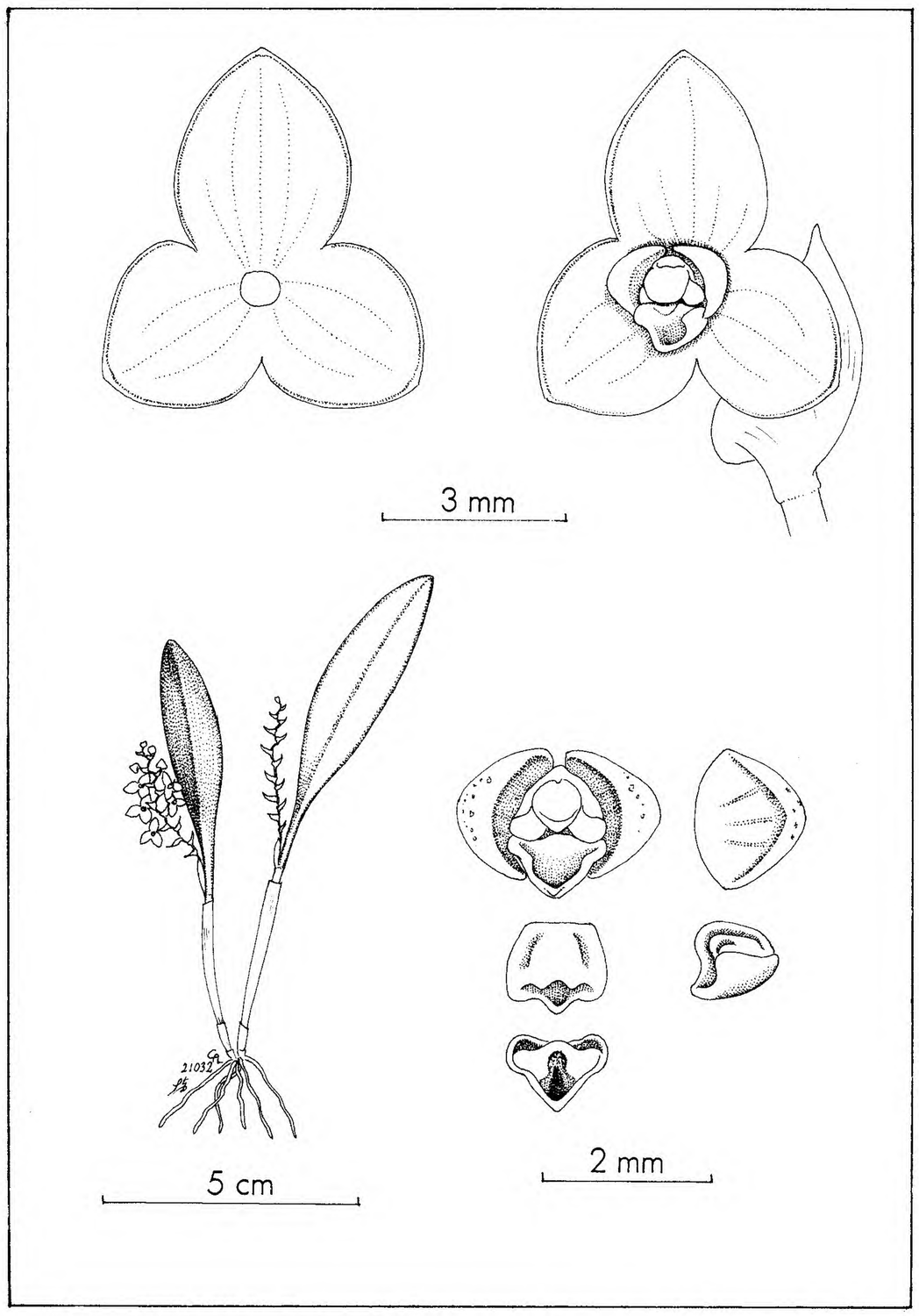


Fig. 367. Stelis espinosae

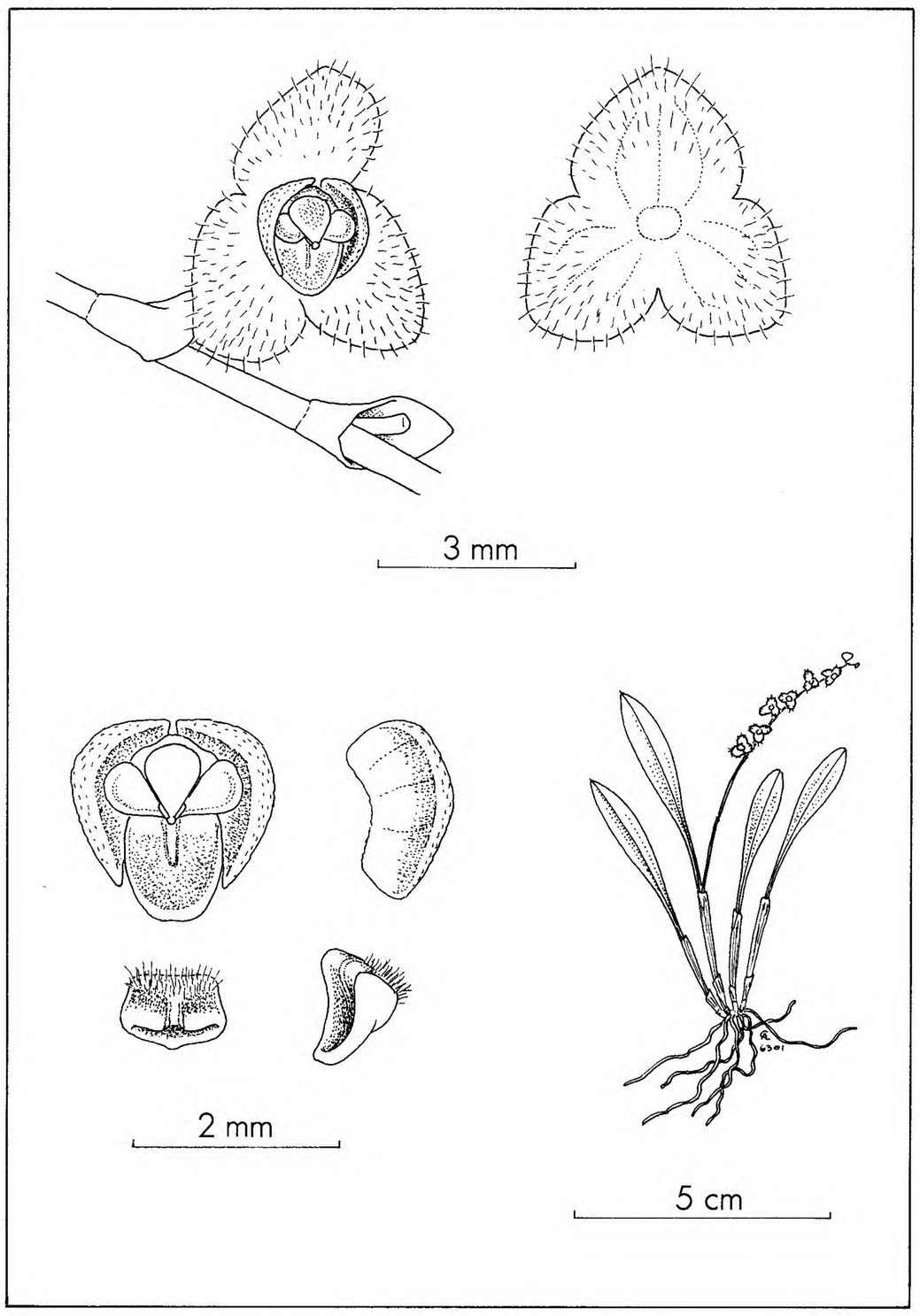


Fig. 368. Stelis eublepharis

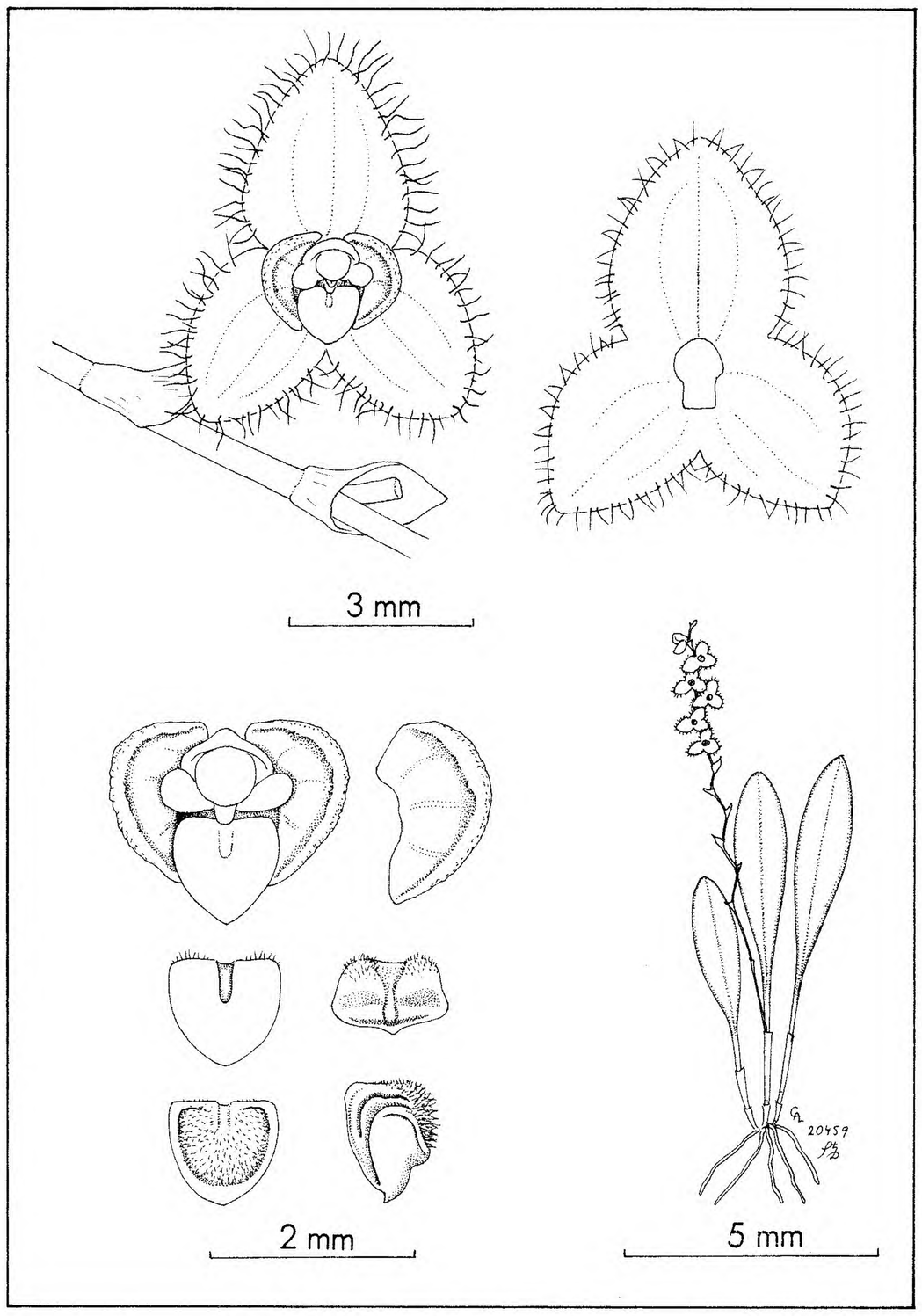


Fig. 368a. Stelis eublepharis

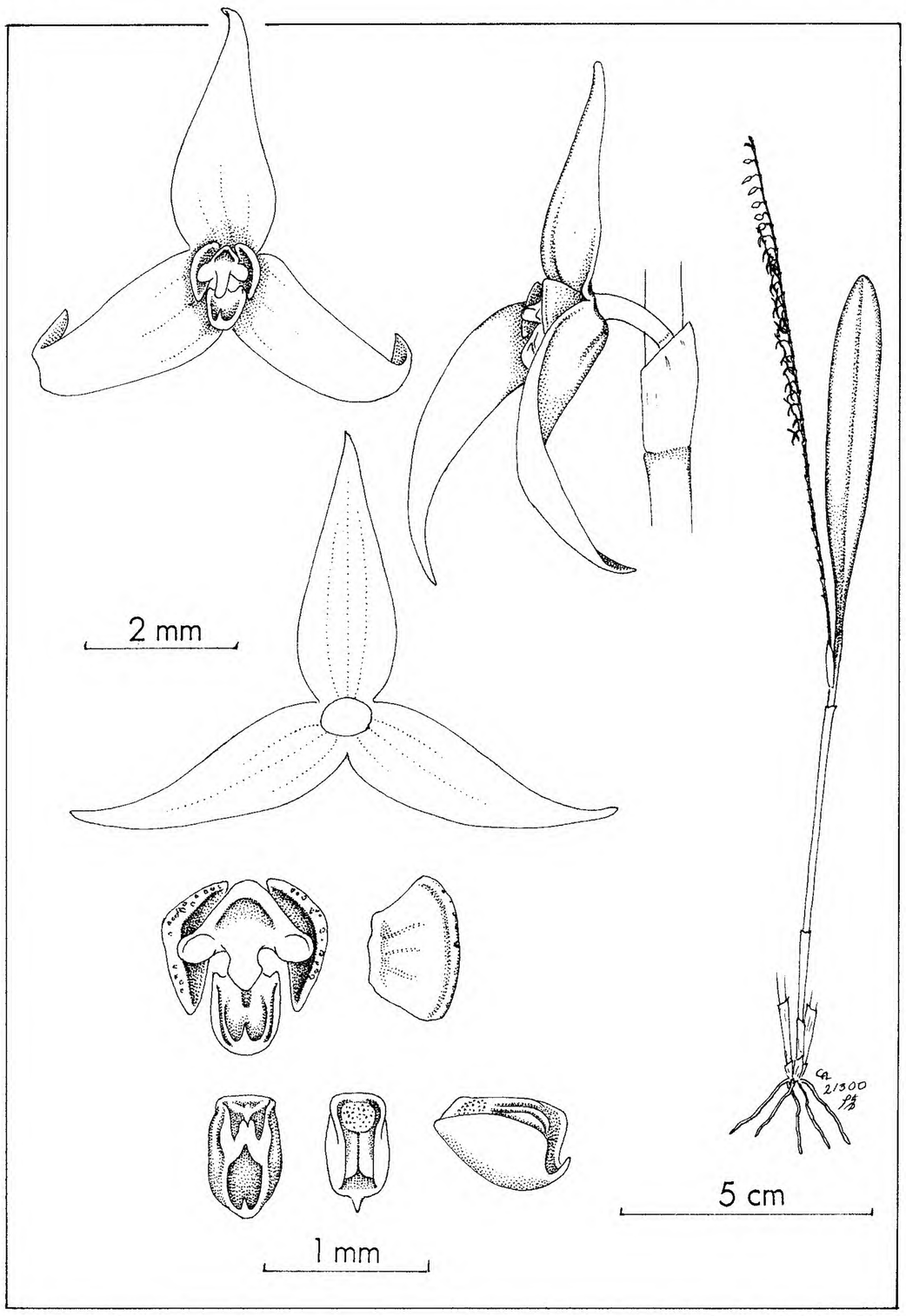


Fig. 369. Stelis exquisita

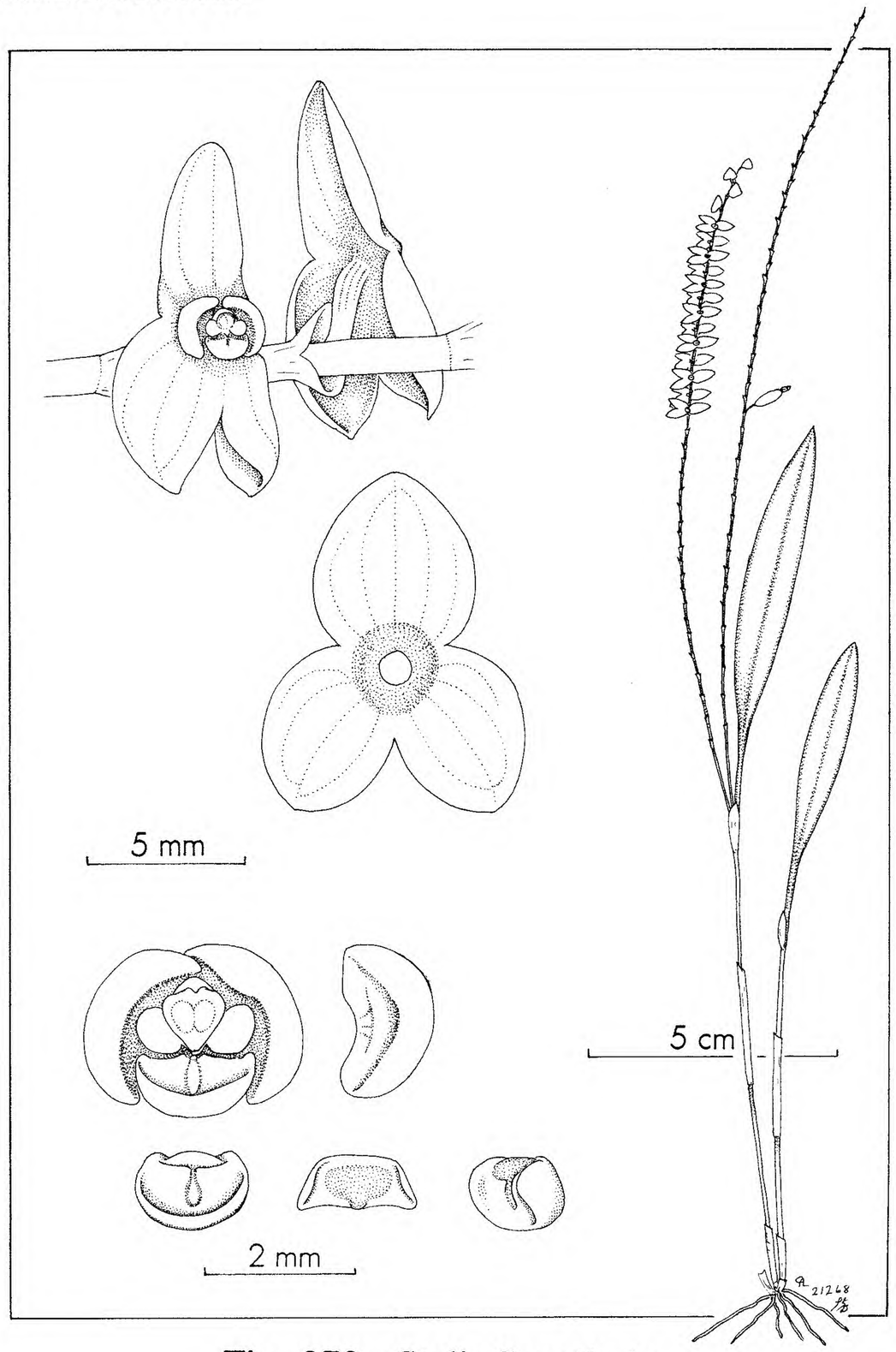


Fig. 370. Stelis flagellaris

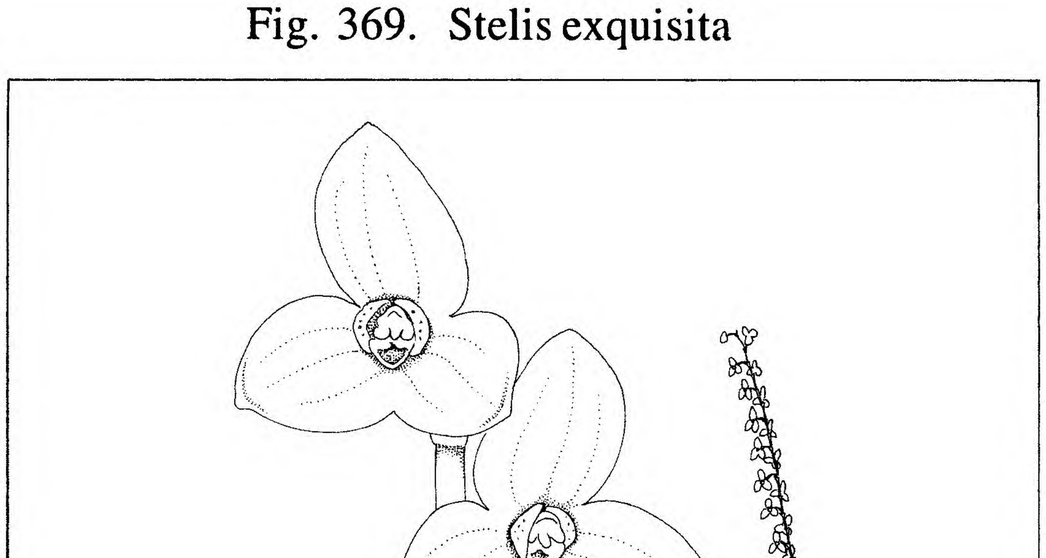


Fig. 371. Stelis foveata

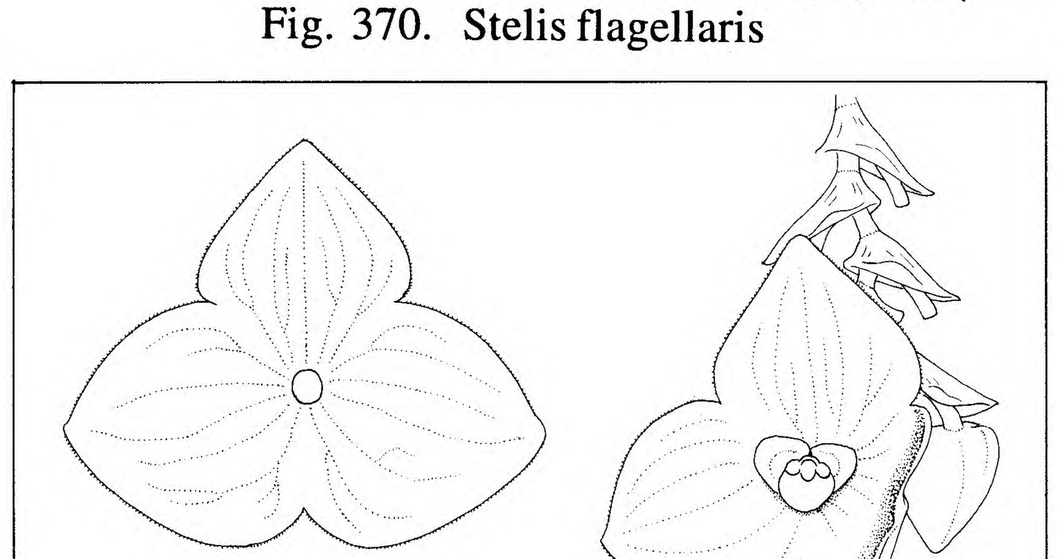


Fig. 372. Stelis gemma

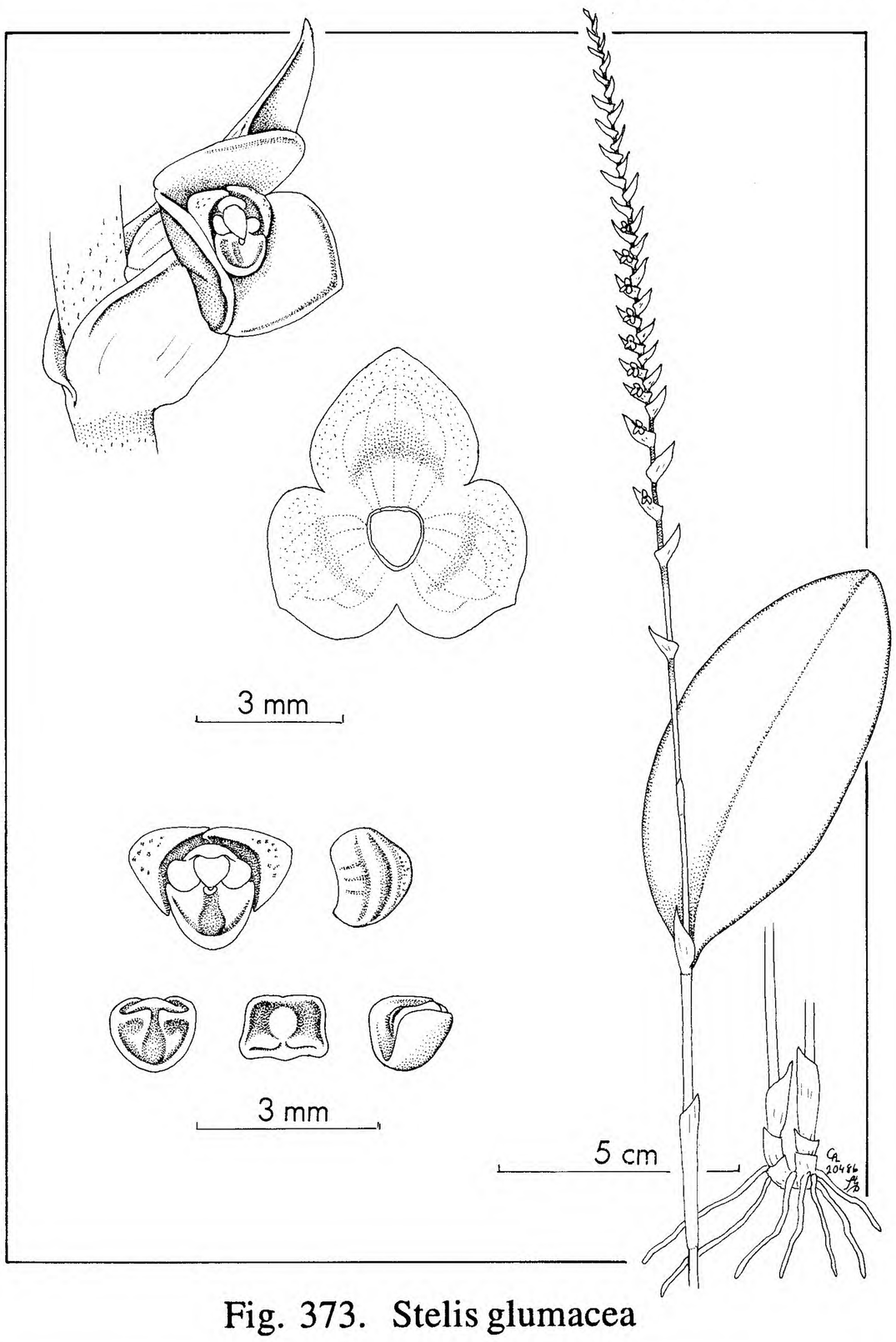


Fig. 373. Stelis glumacea

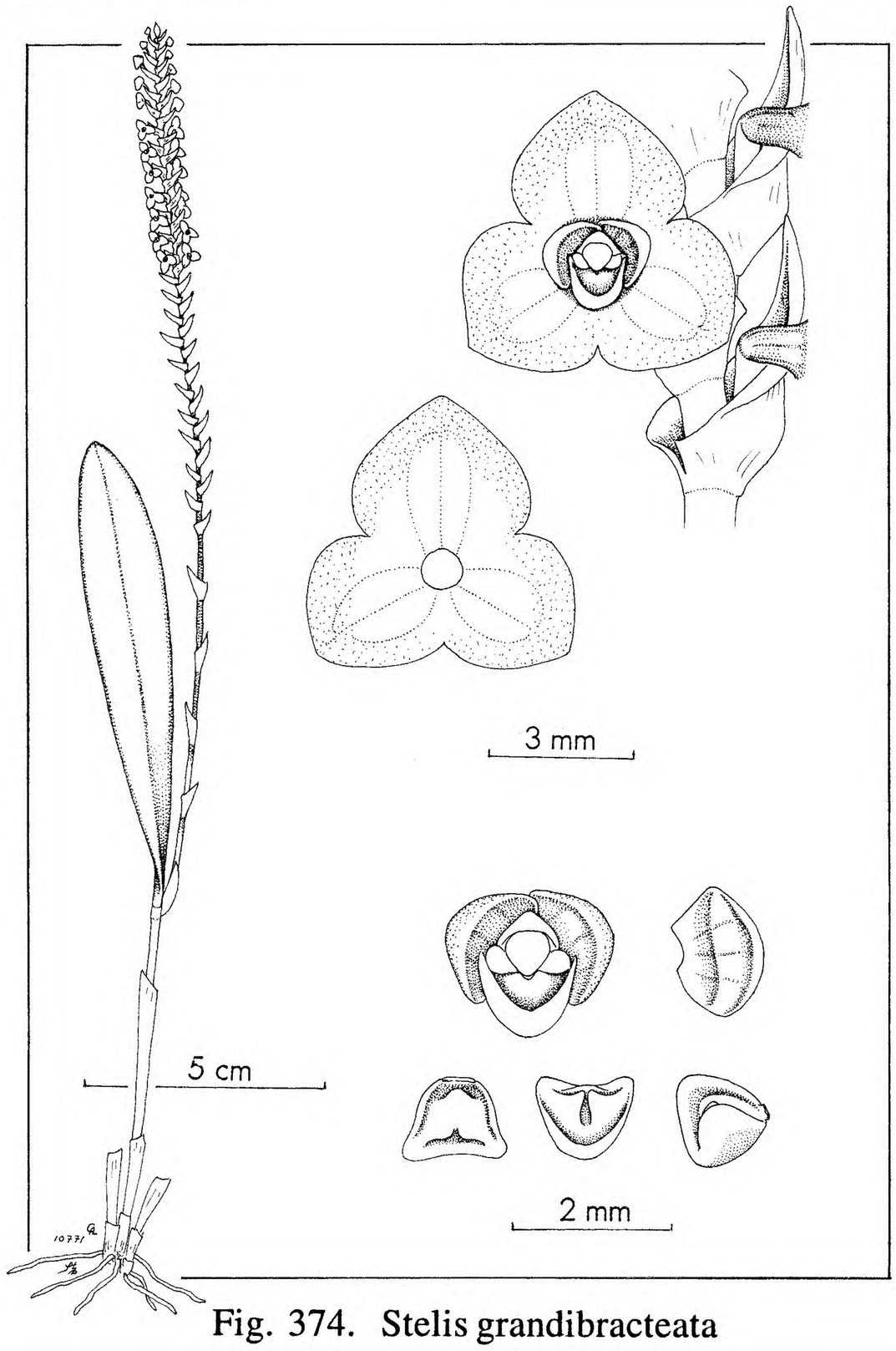


Fig. 374. Stelis grandibracteata

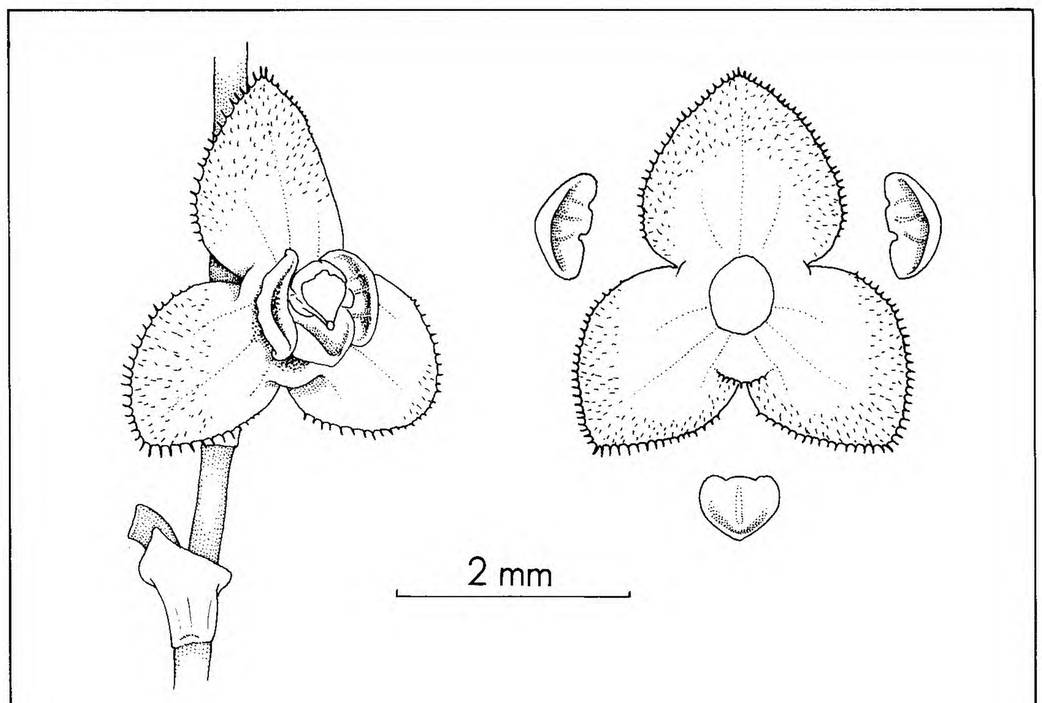


Fig. 40. Stelis guianensis

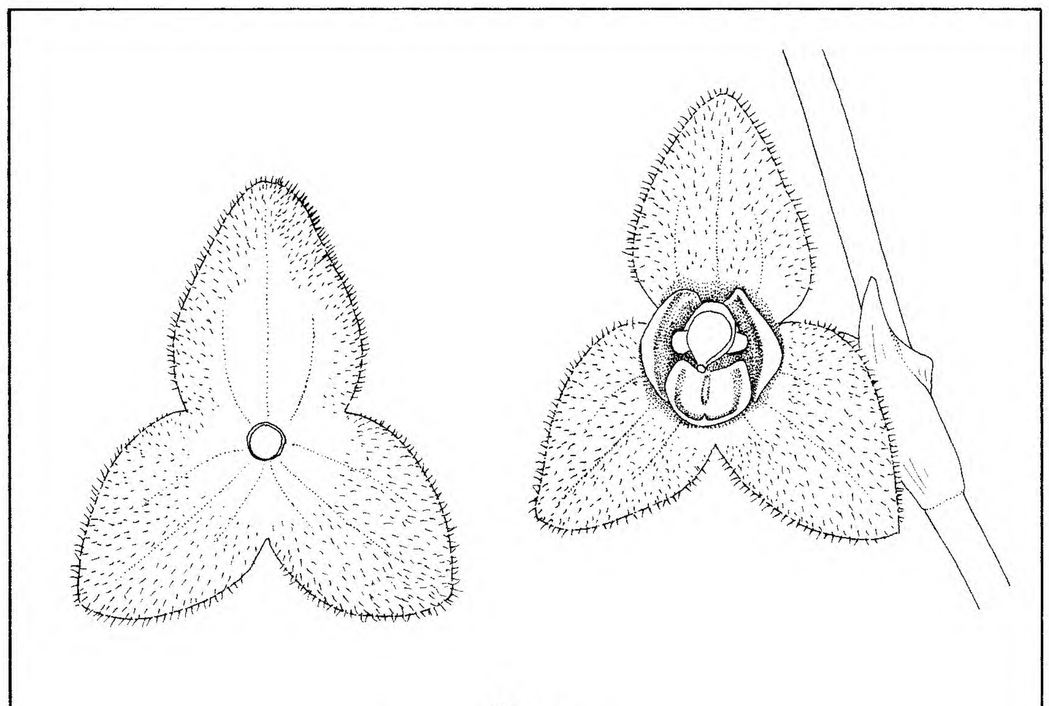


Fig. 40a. Stelis guianensis

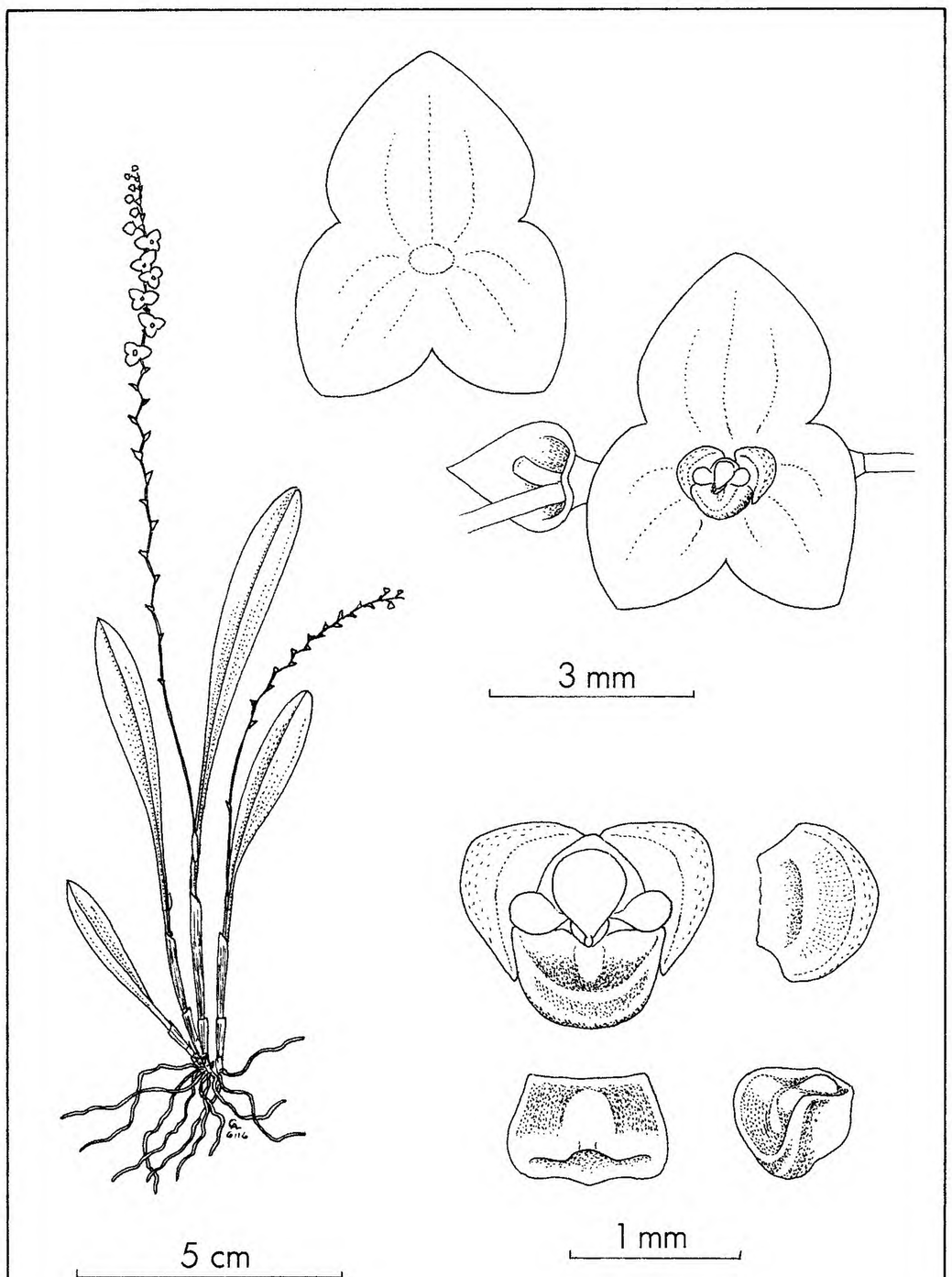


Fig. 291a. Stelis hallii

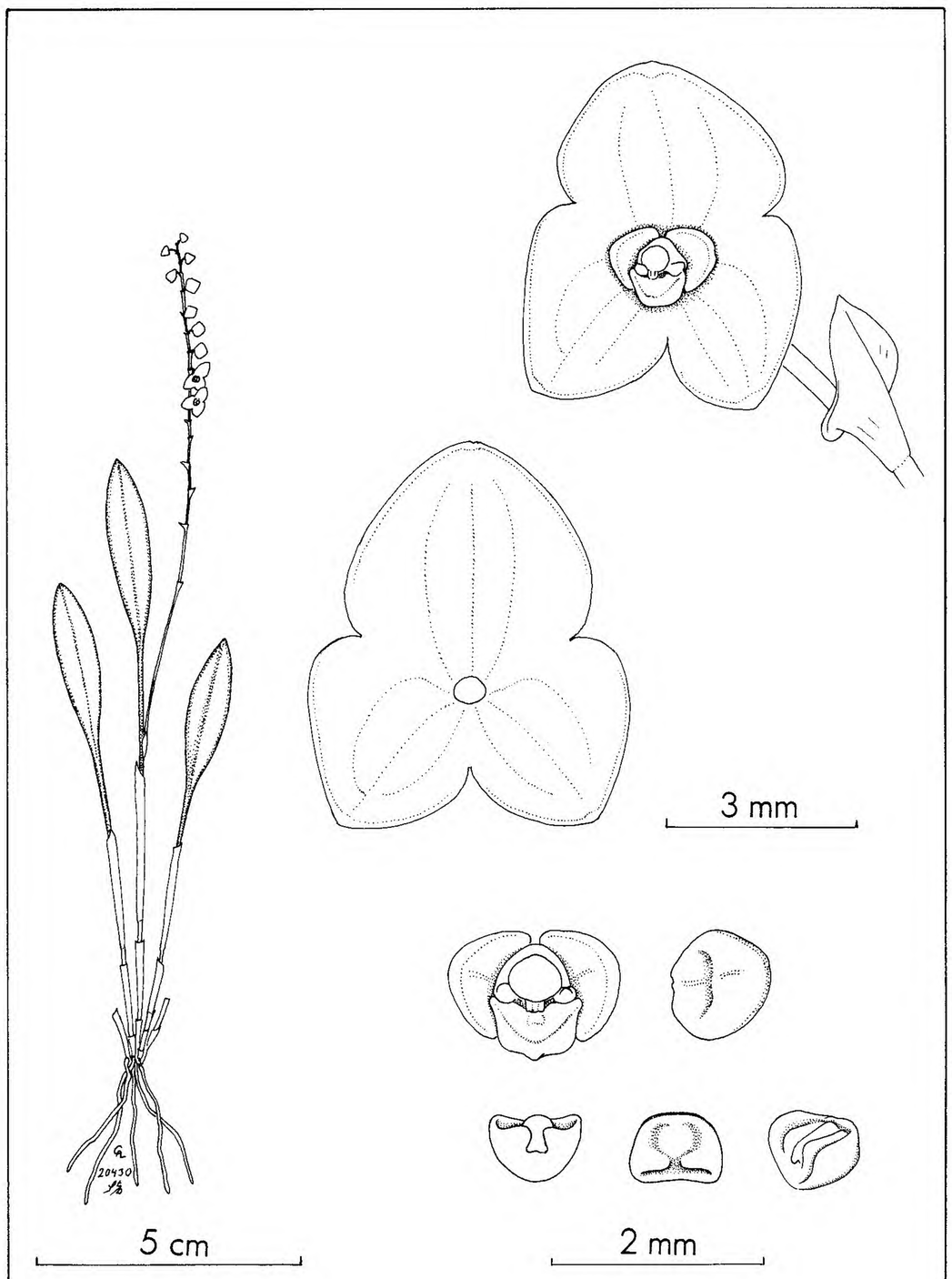


Fig. 291b. Stelis hallii

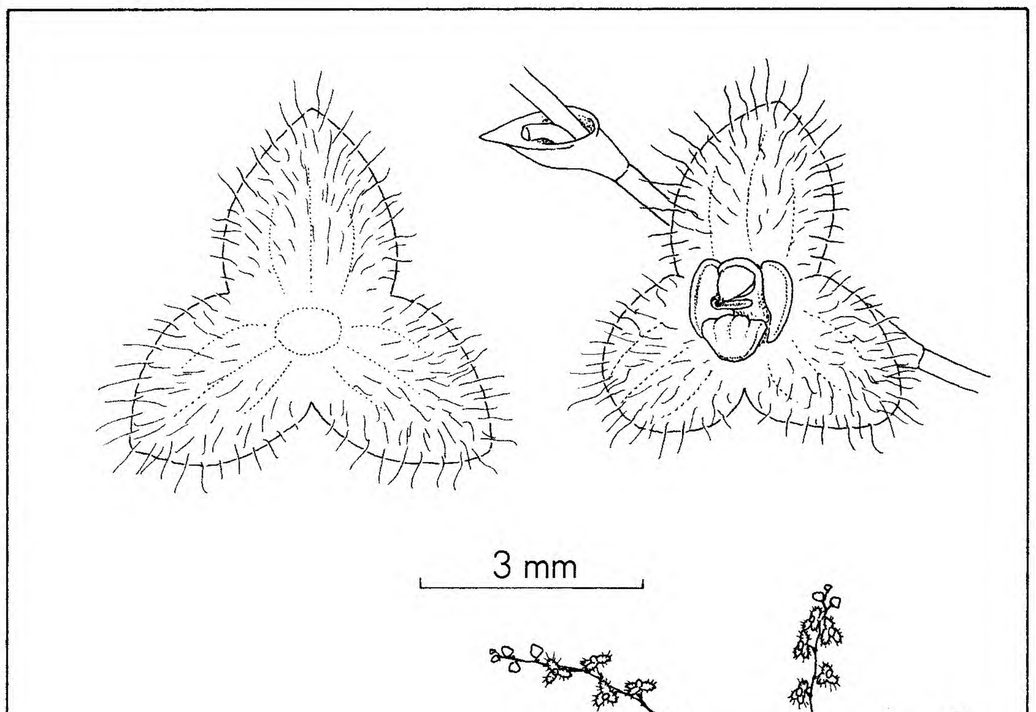


Fig. 375. Stelis hirtella

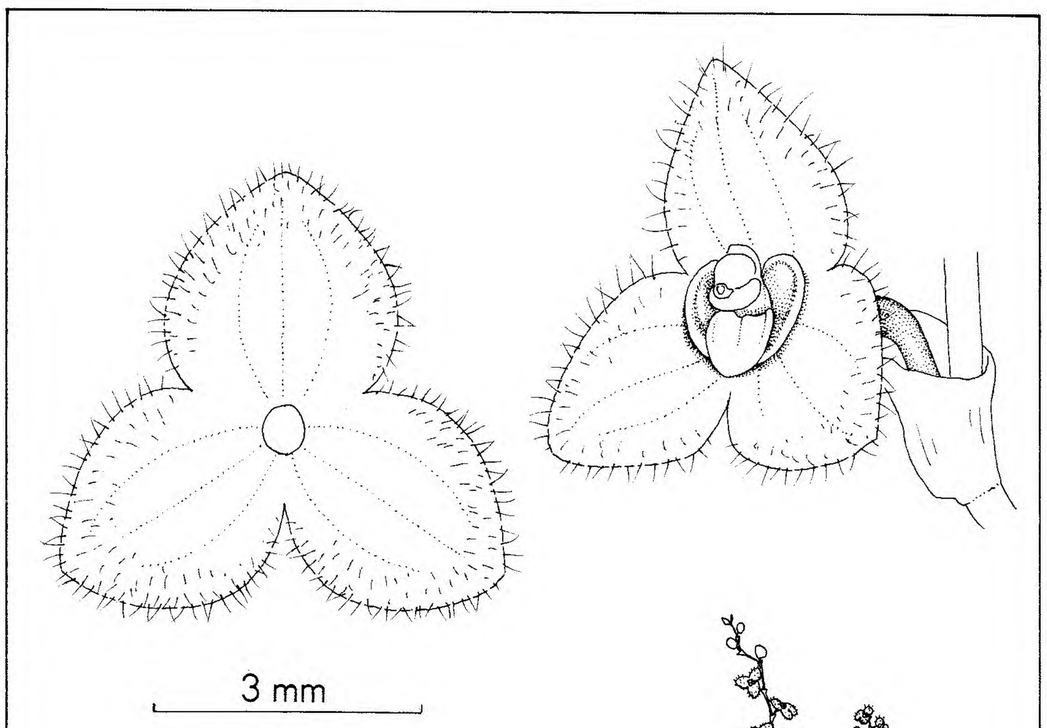


Fig. 375a. Stelis hirtella

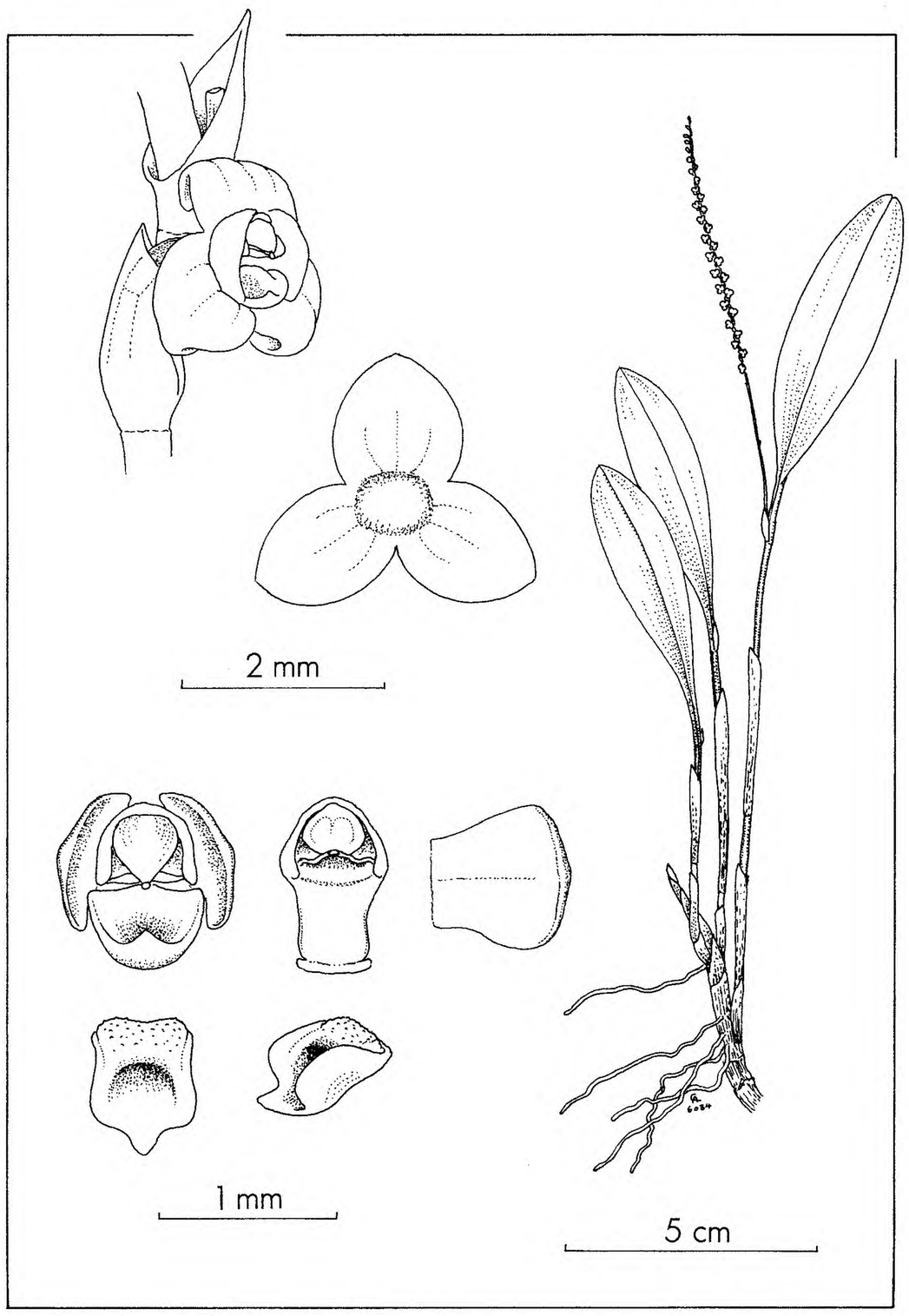


Fig. 376. Stelis hylophila

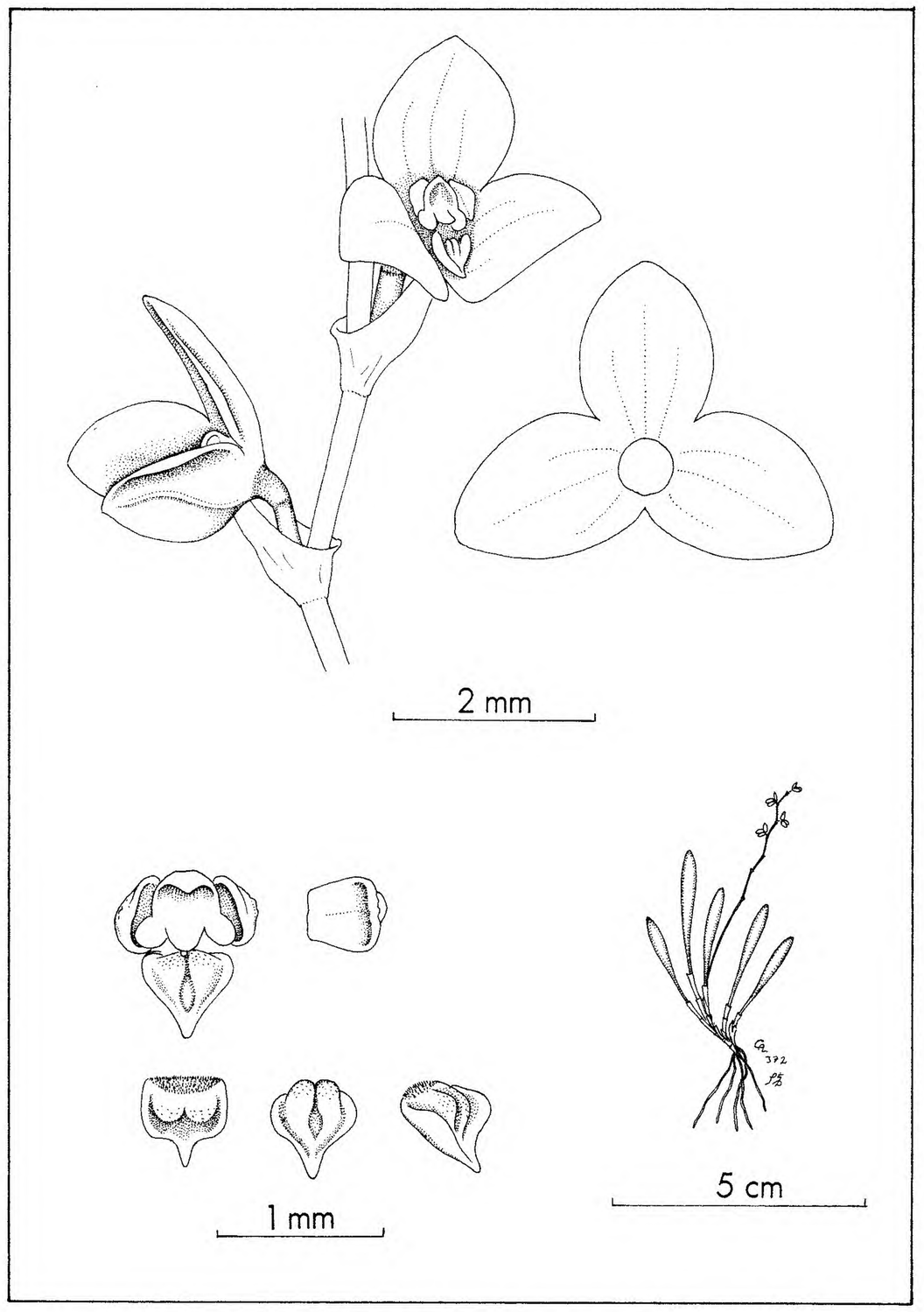


Fig. 377. Stelis hymenantha

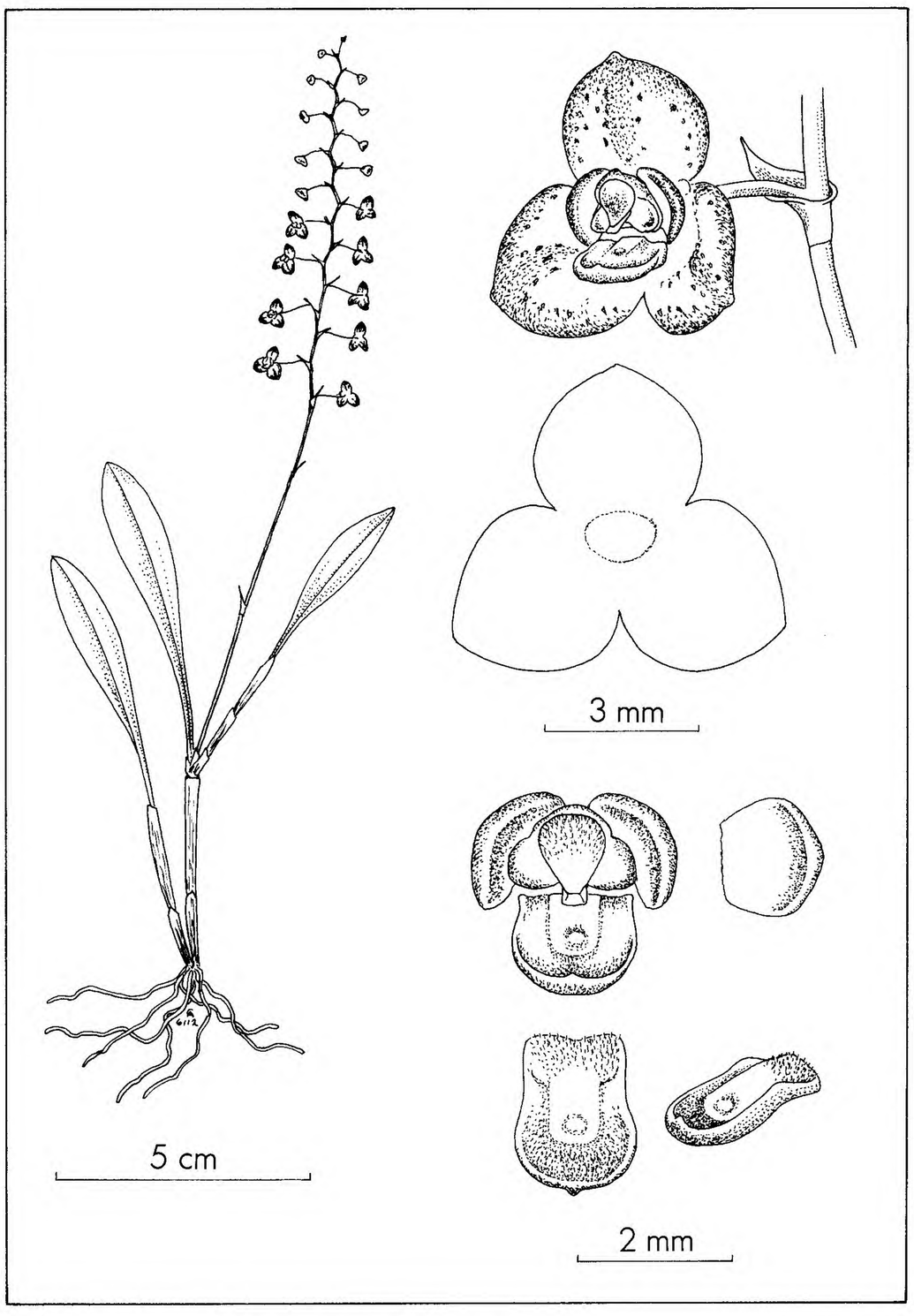


Fig. 378. Stelis jamesonii

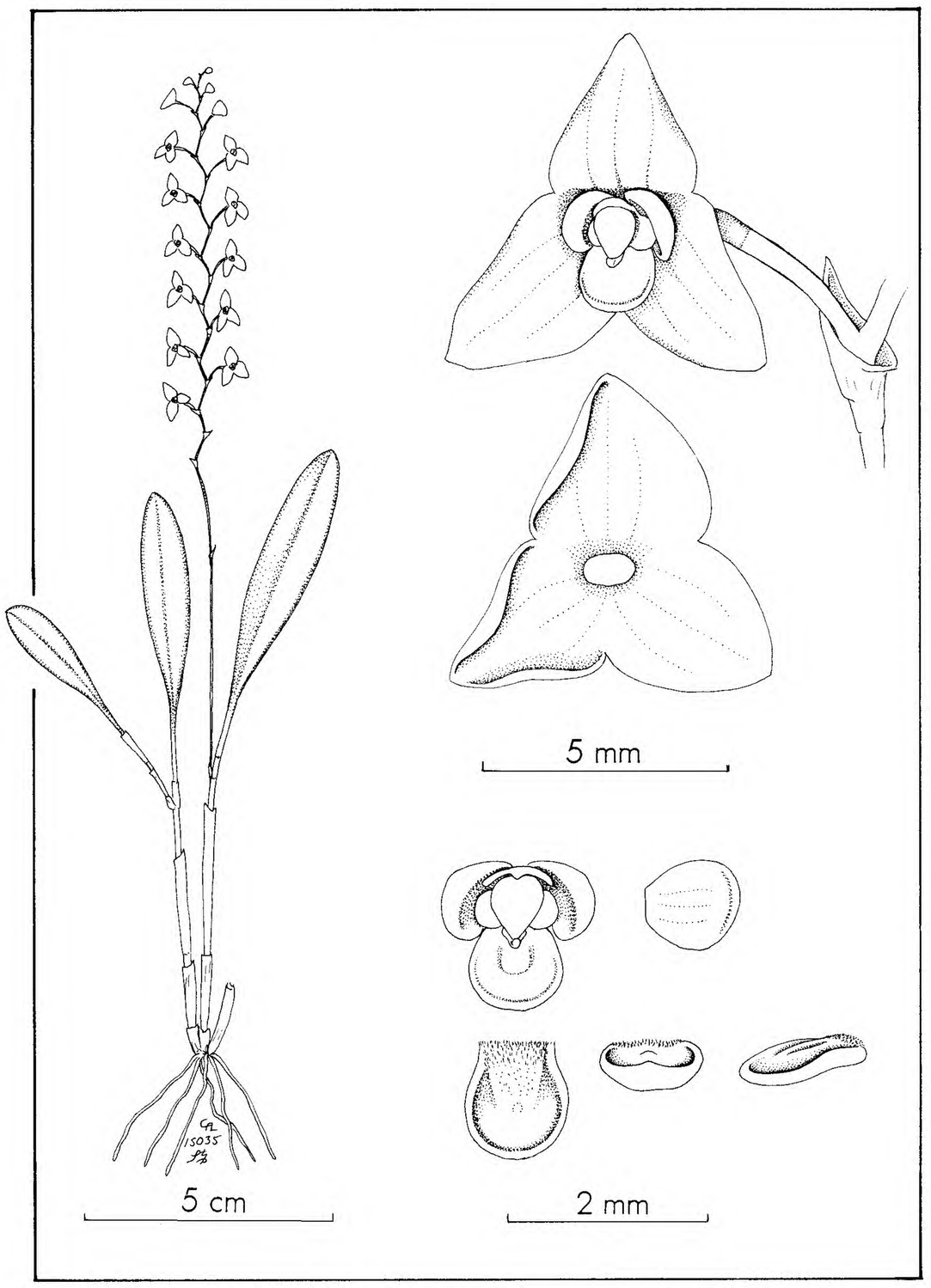


Fig. 378a. Stelis jamesonii

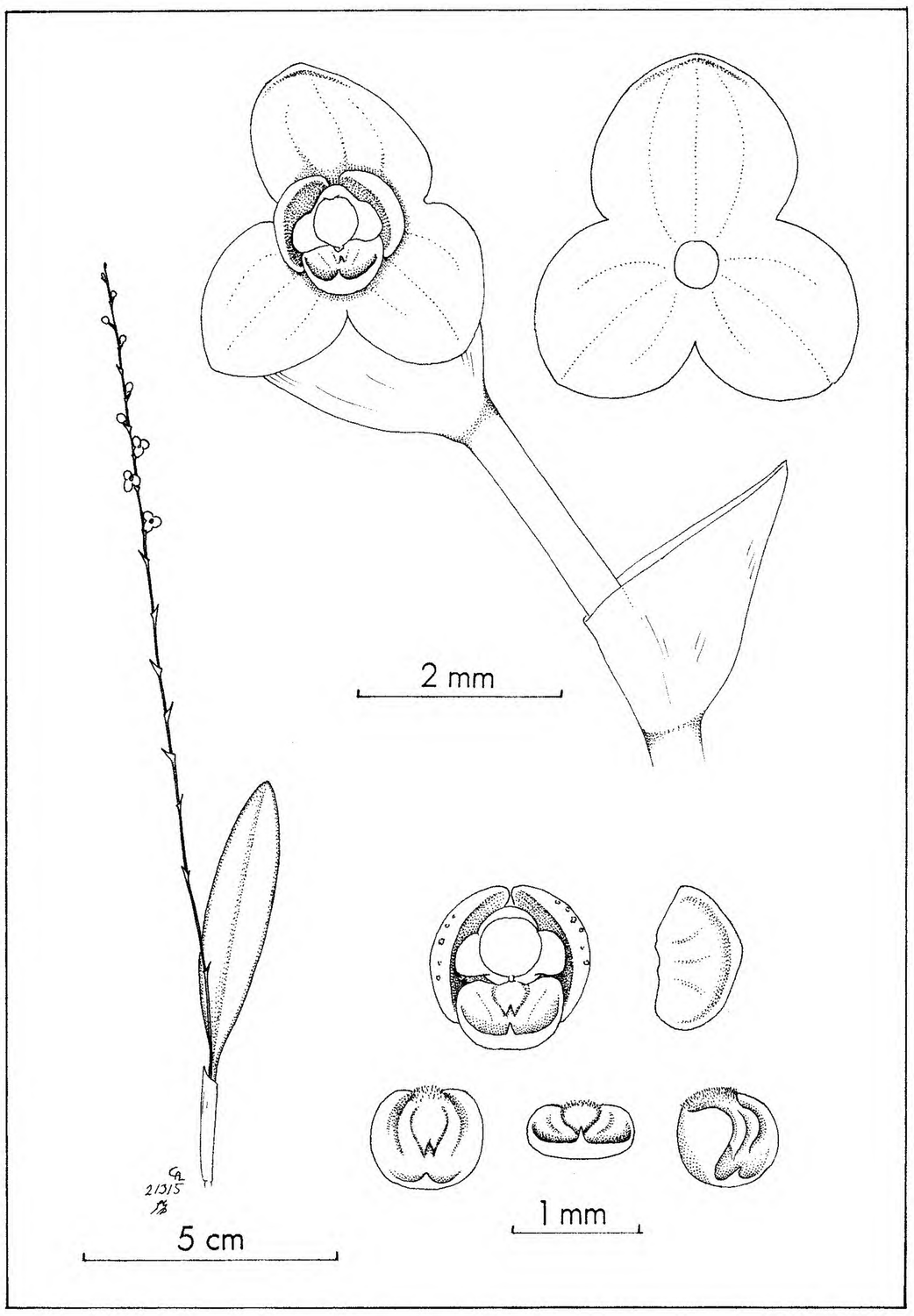


Fig. 379. Stelis kentii

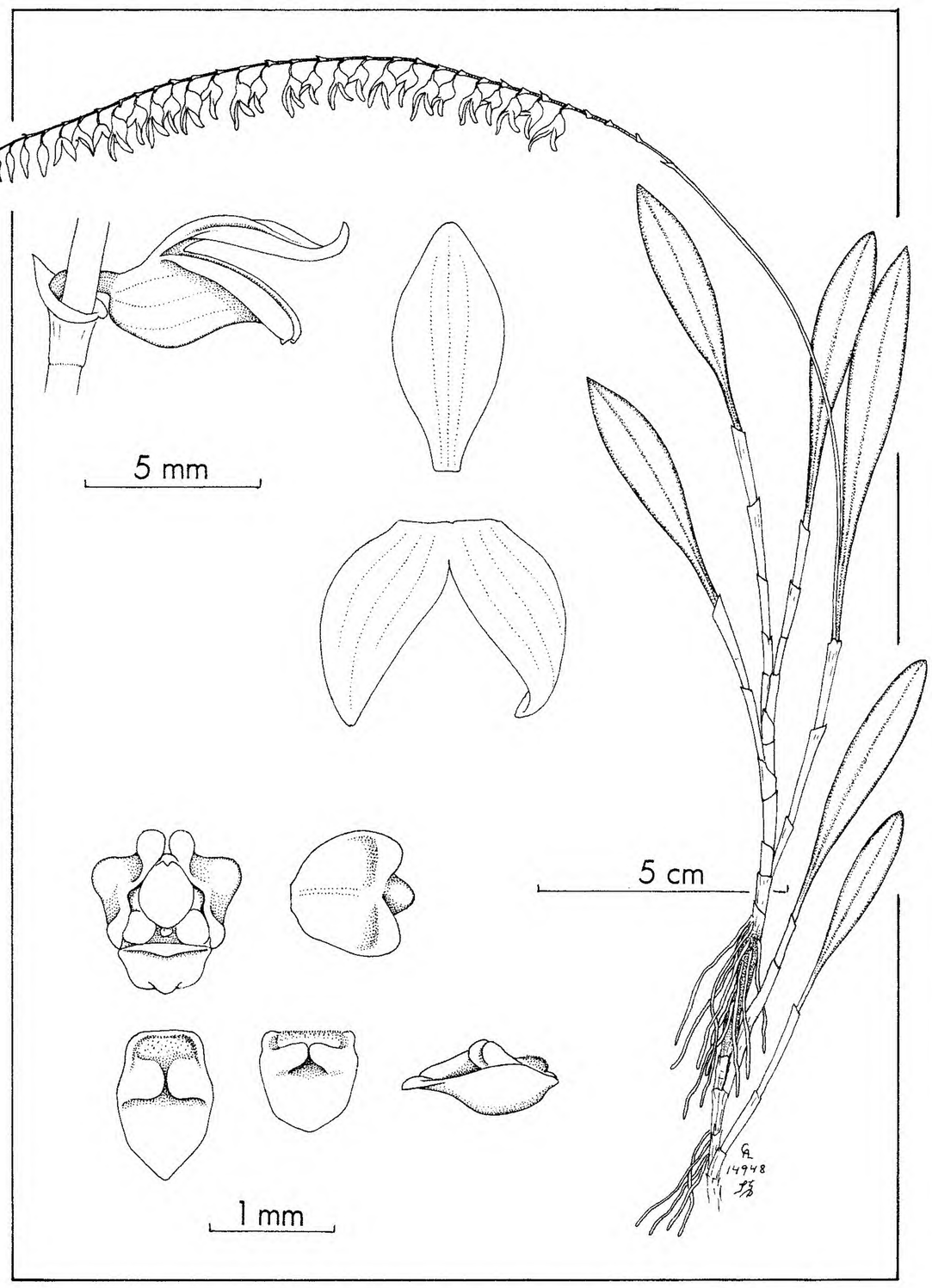


Fig. 380. Stelis lamellata

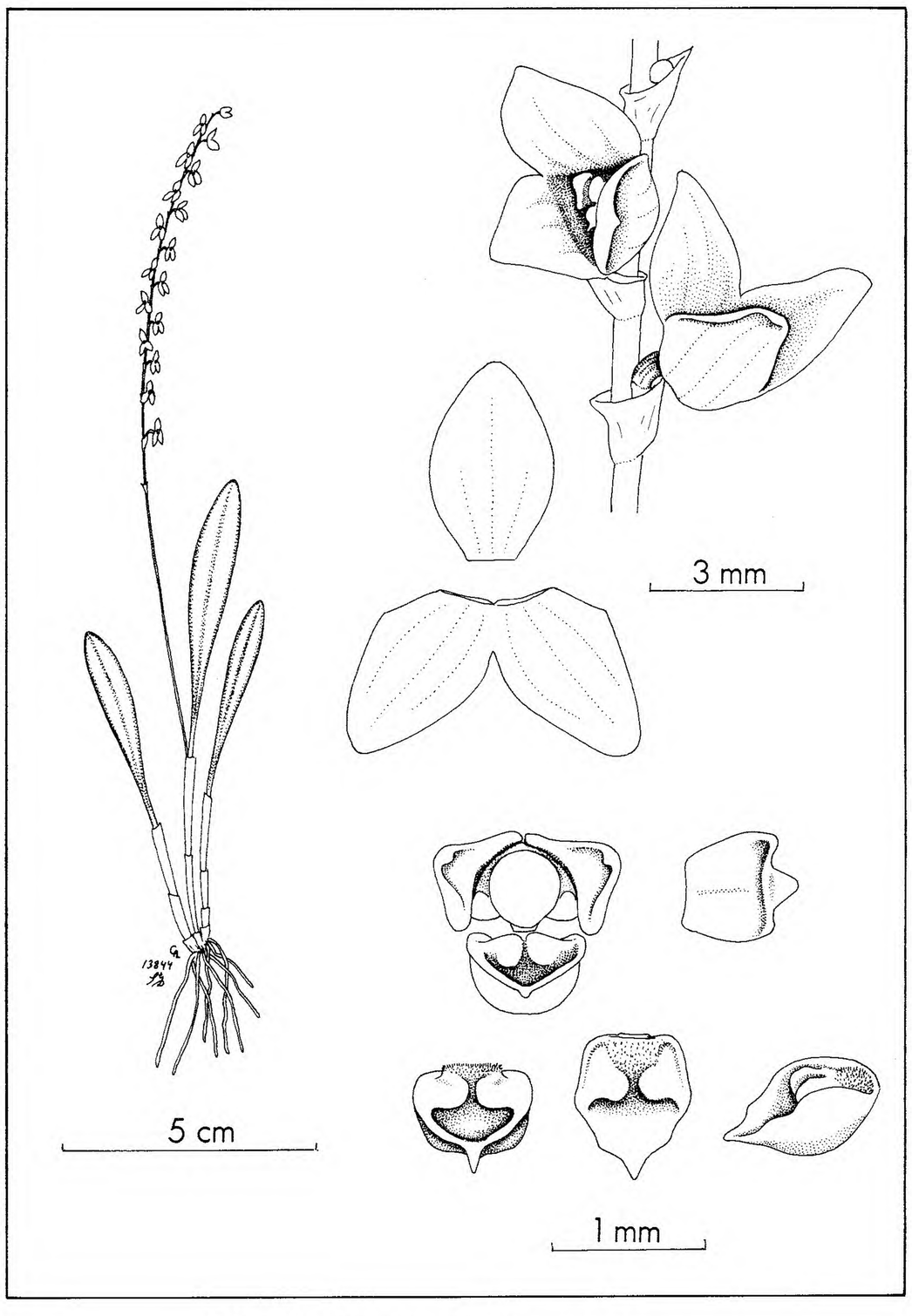


Fig. 380a. Stelis lamellata

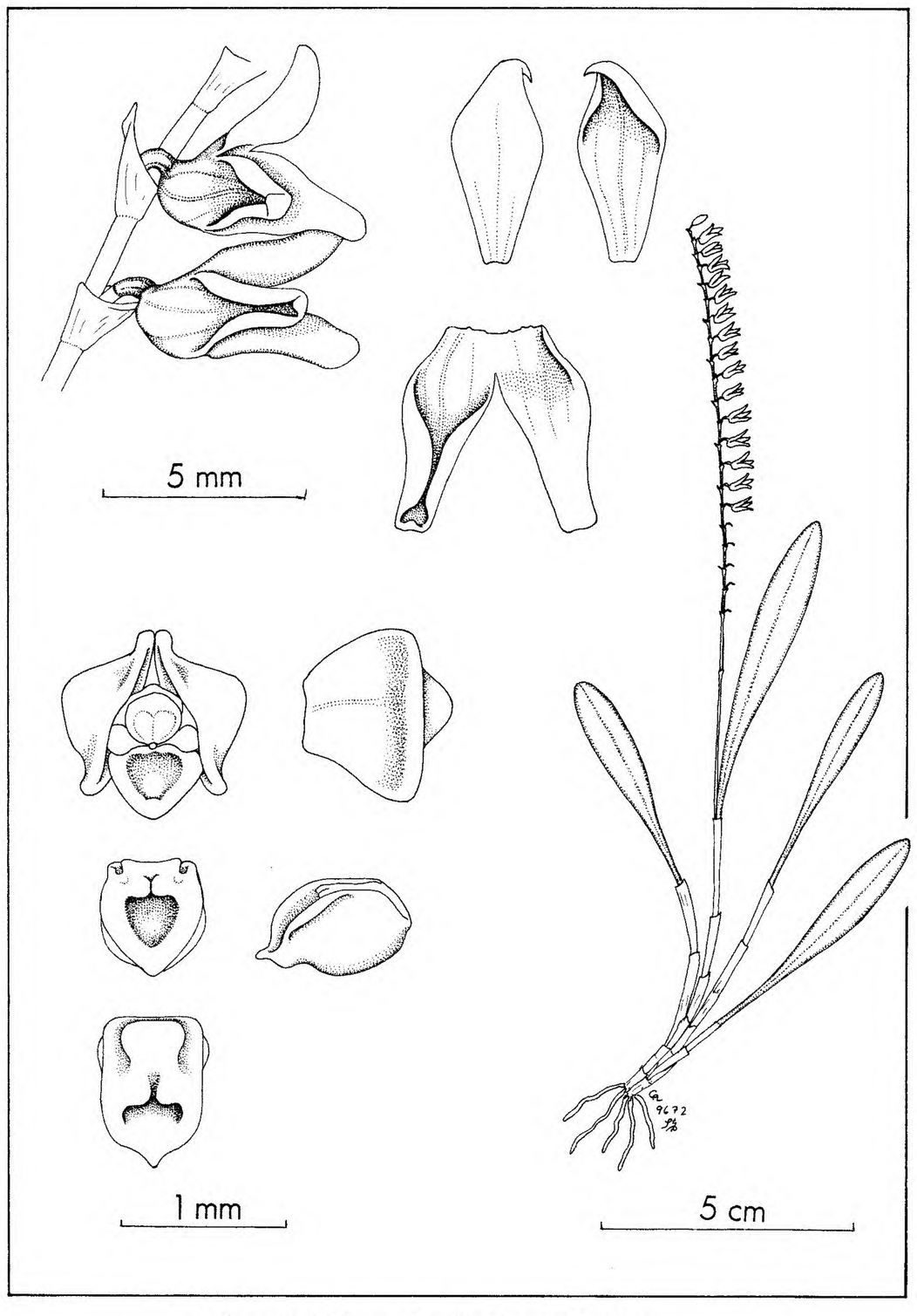


Fig. 380b. Stelis lamellata

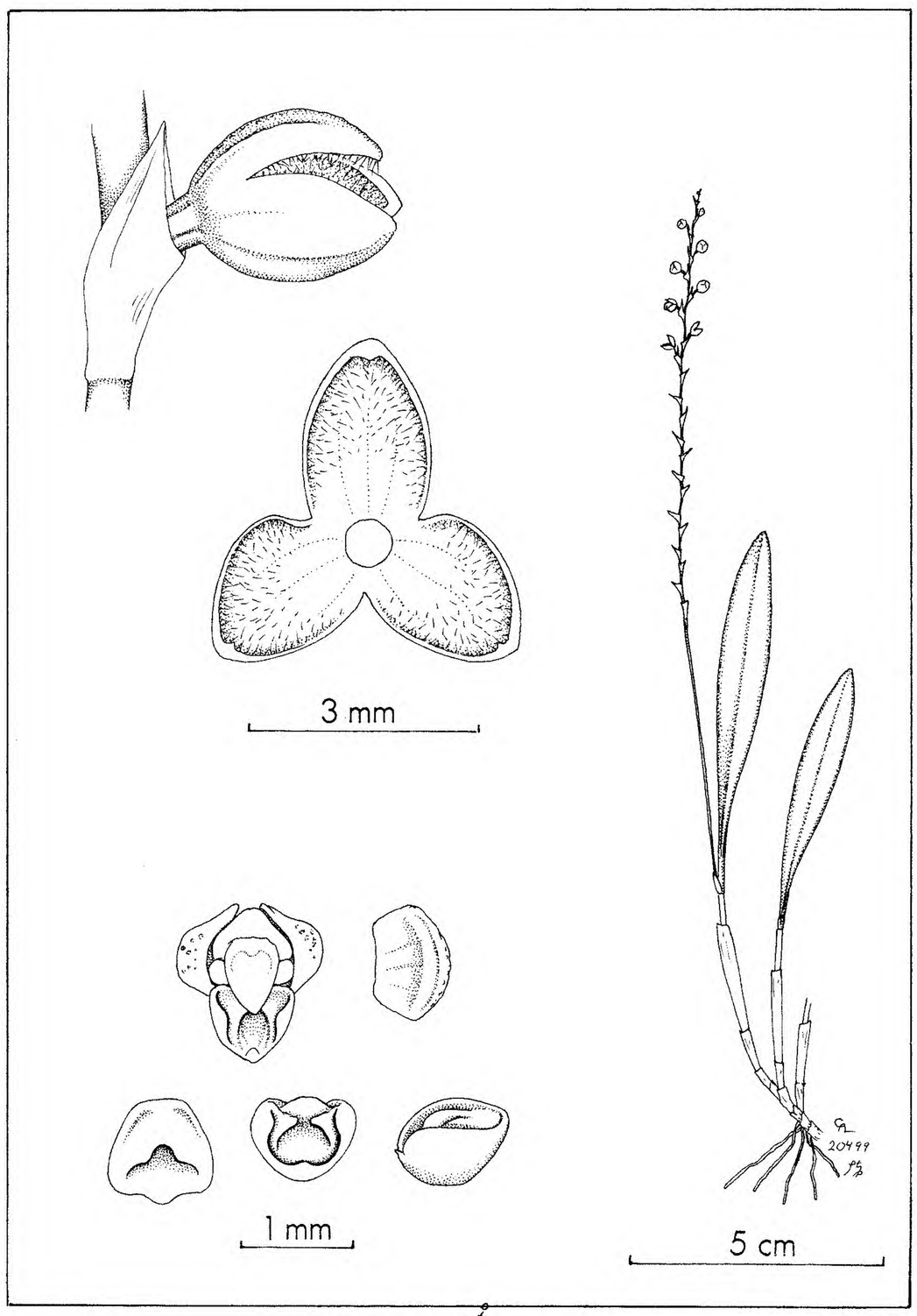


Fig. 381. Stelis lanata

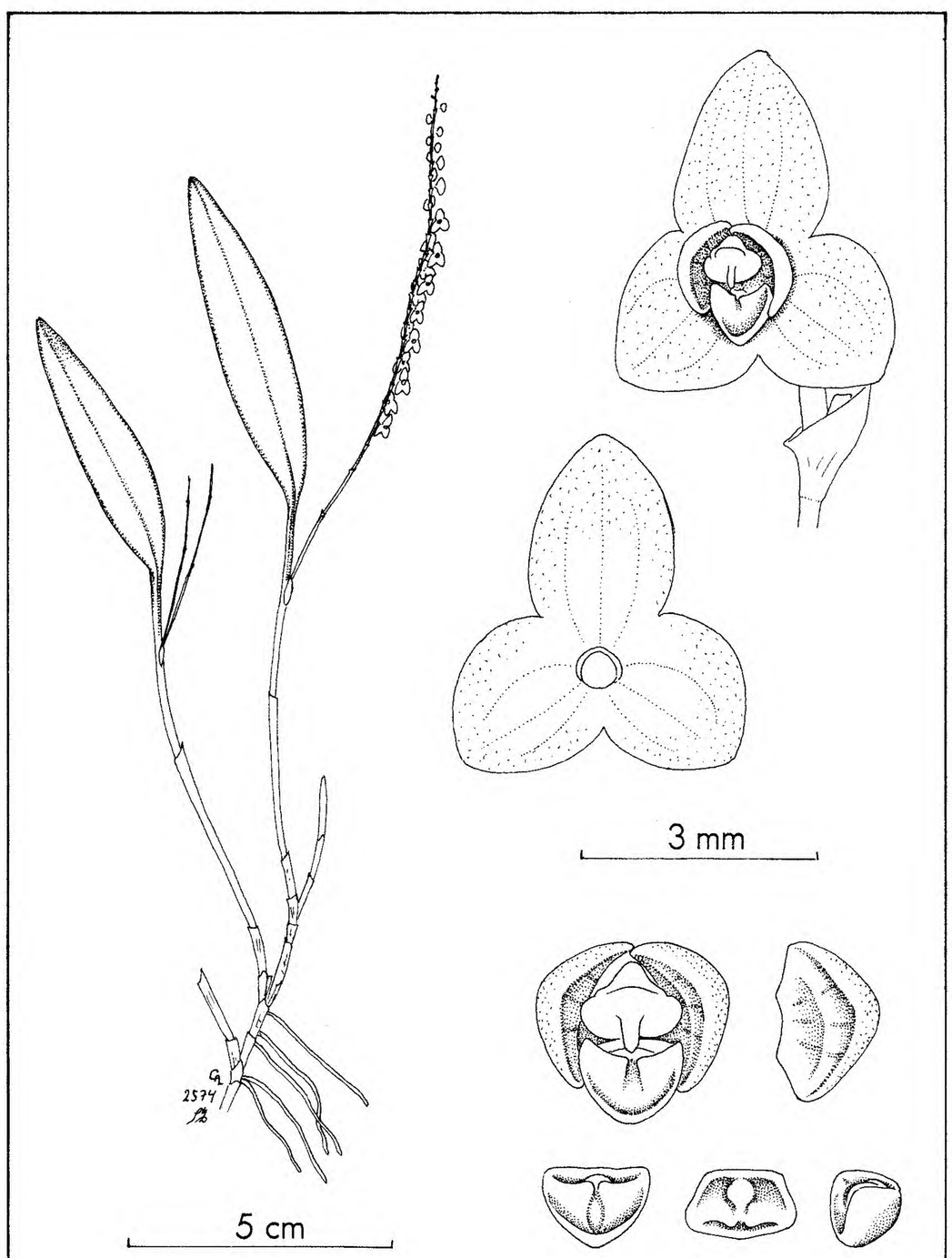


Fig. 382. Stelis lancea

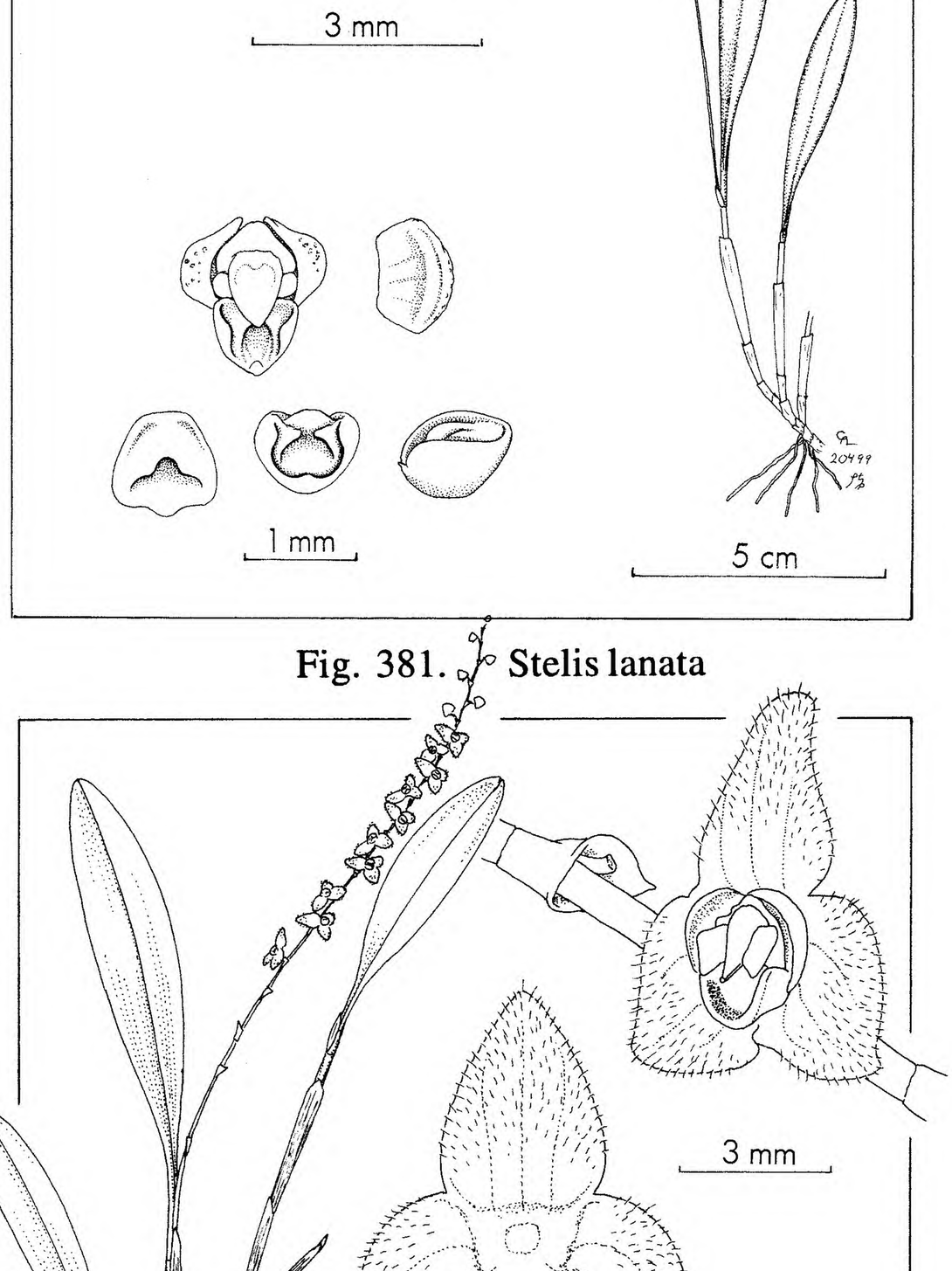


Fig. 383. Stelis lanceolata

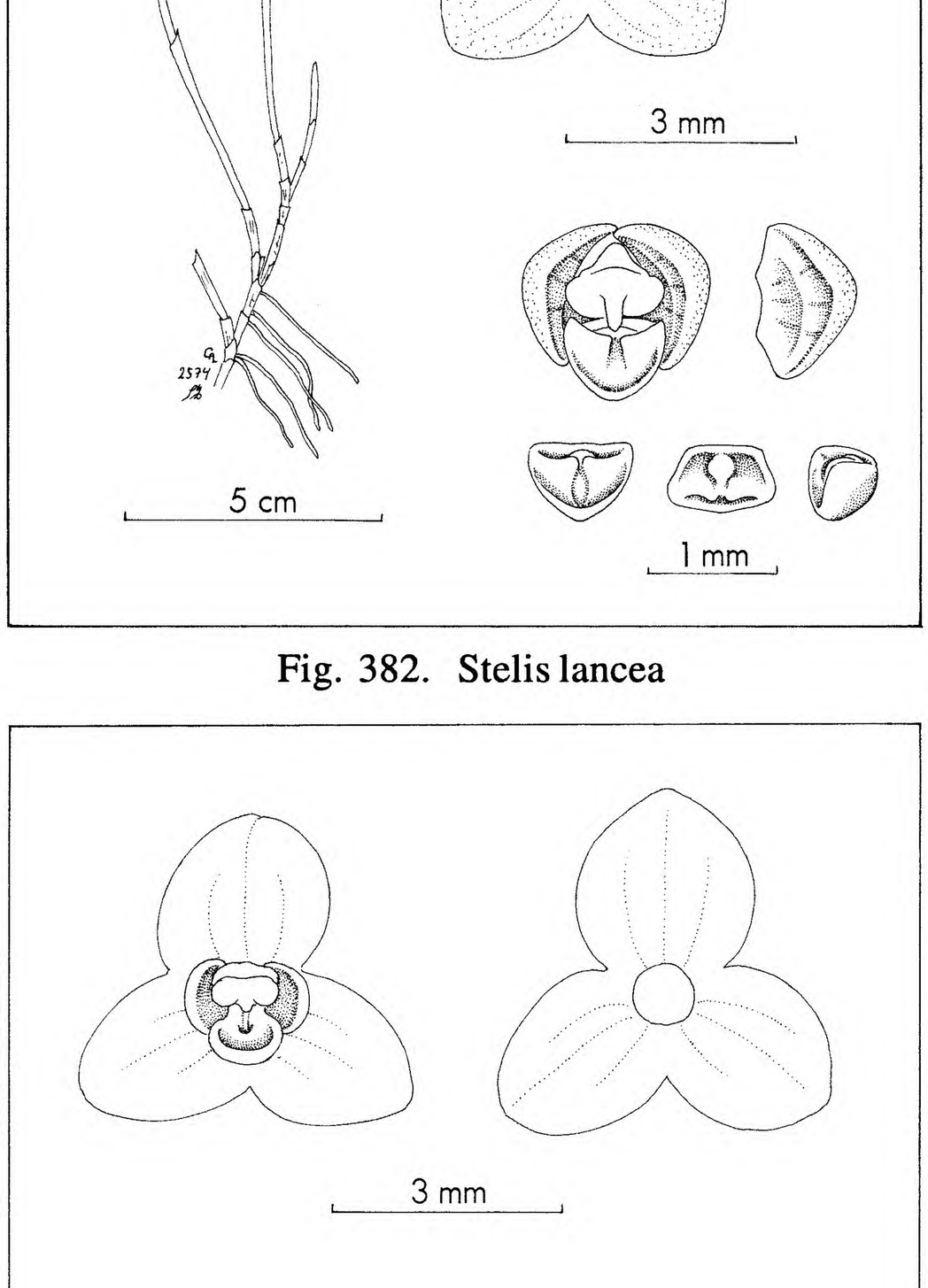


Fig. 384. Stelis lentiginosa

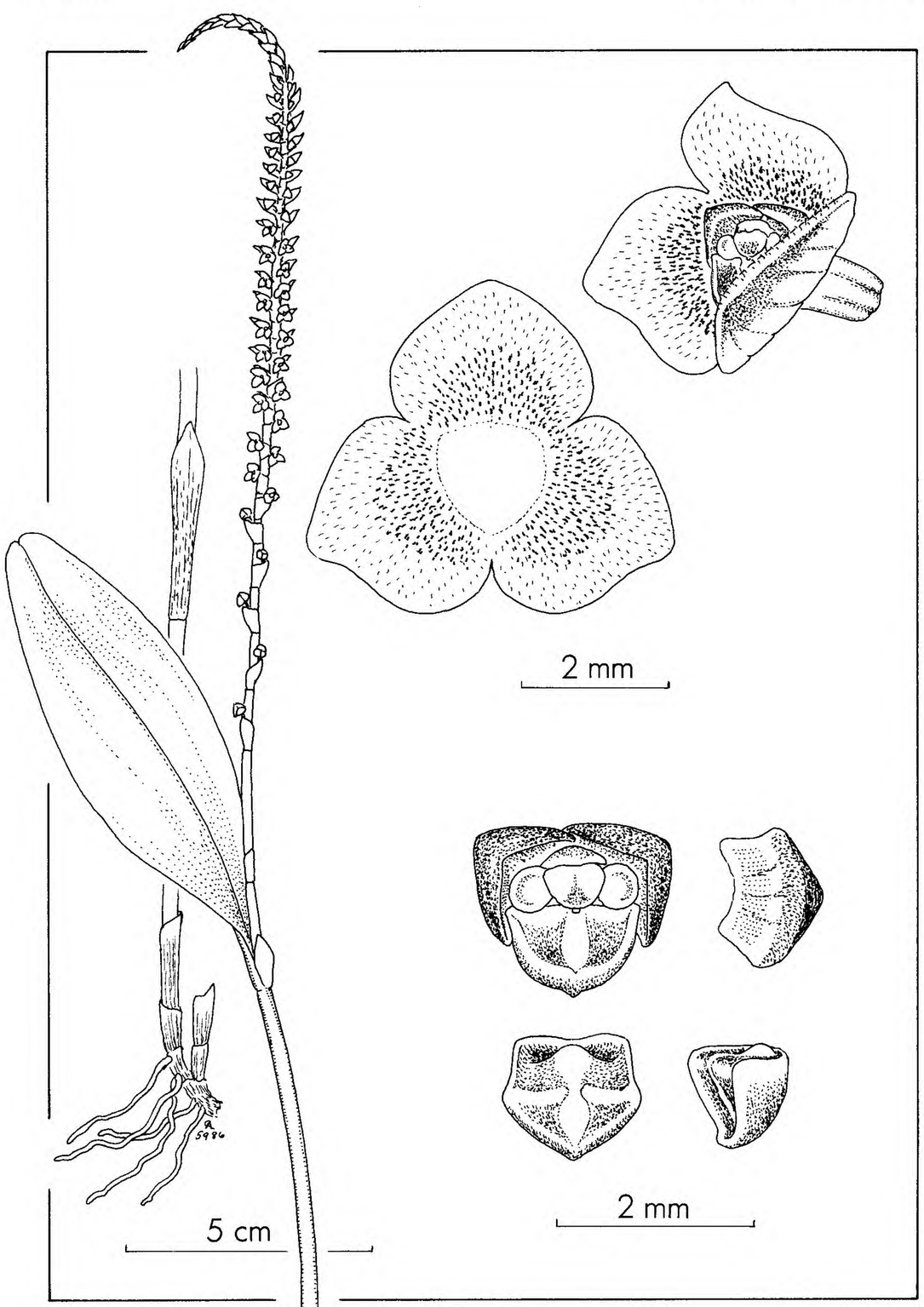


Fig. 385. Stelis lindenii

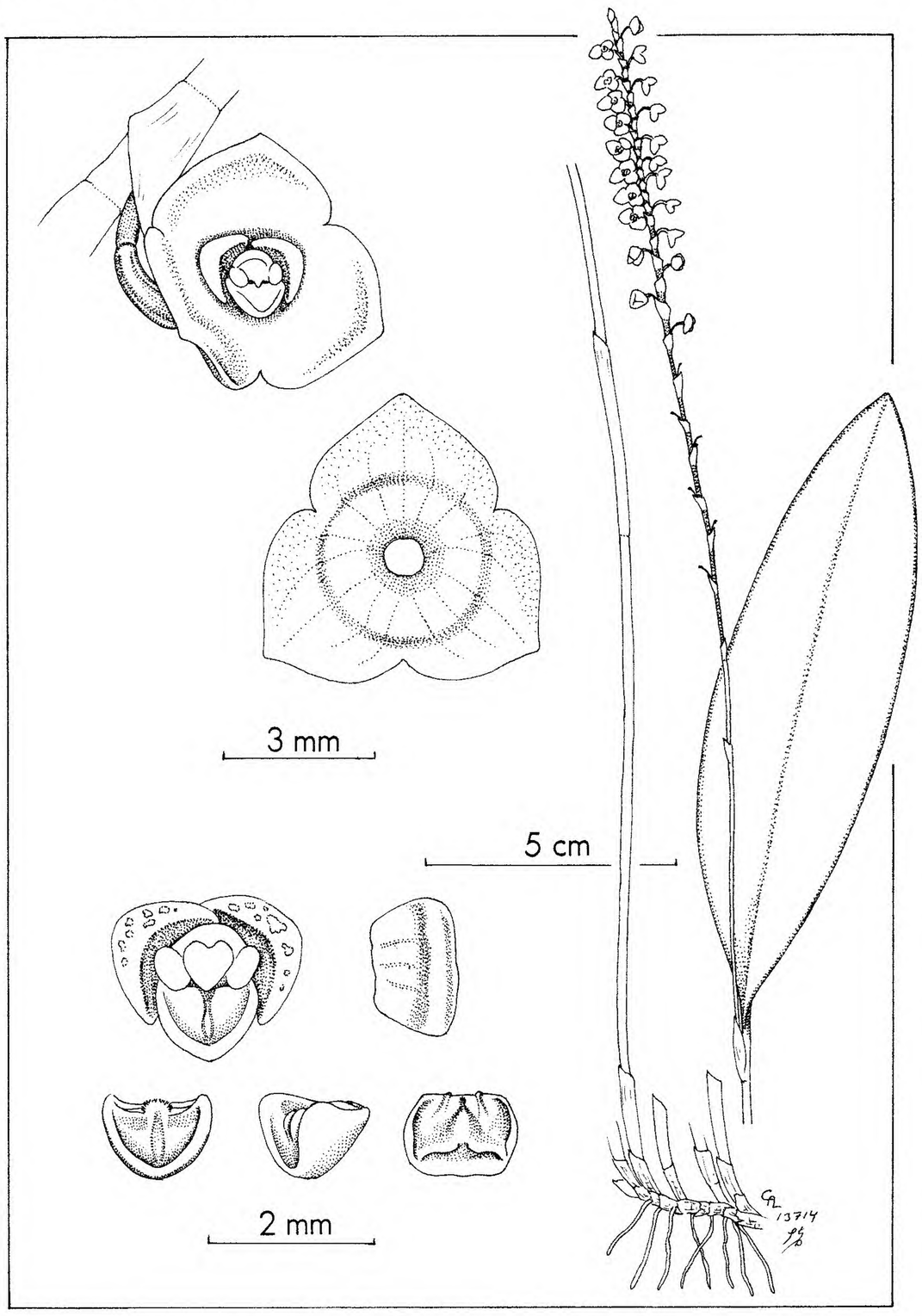


Fig. 385a. Stelis lindenii

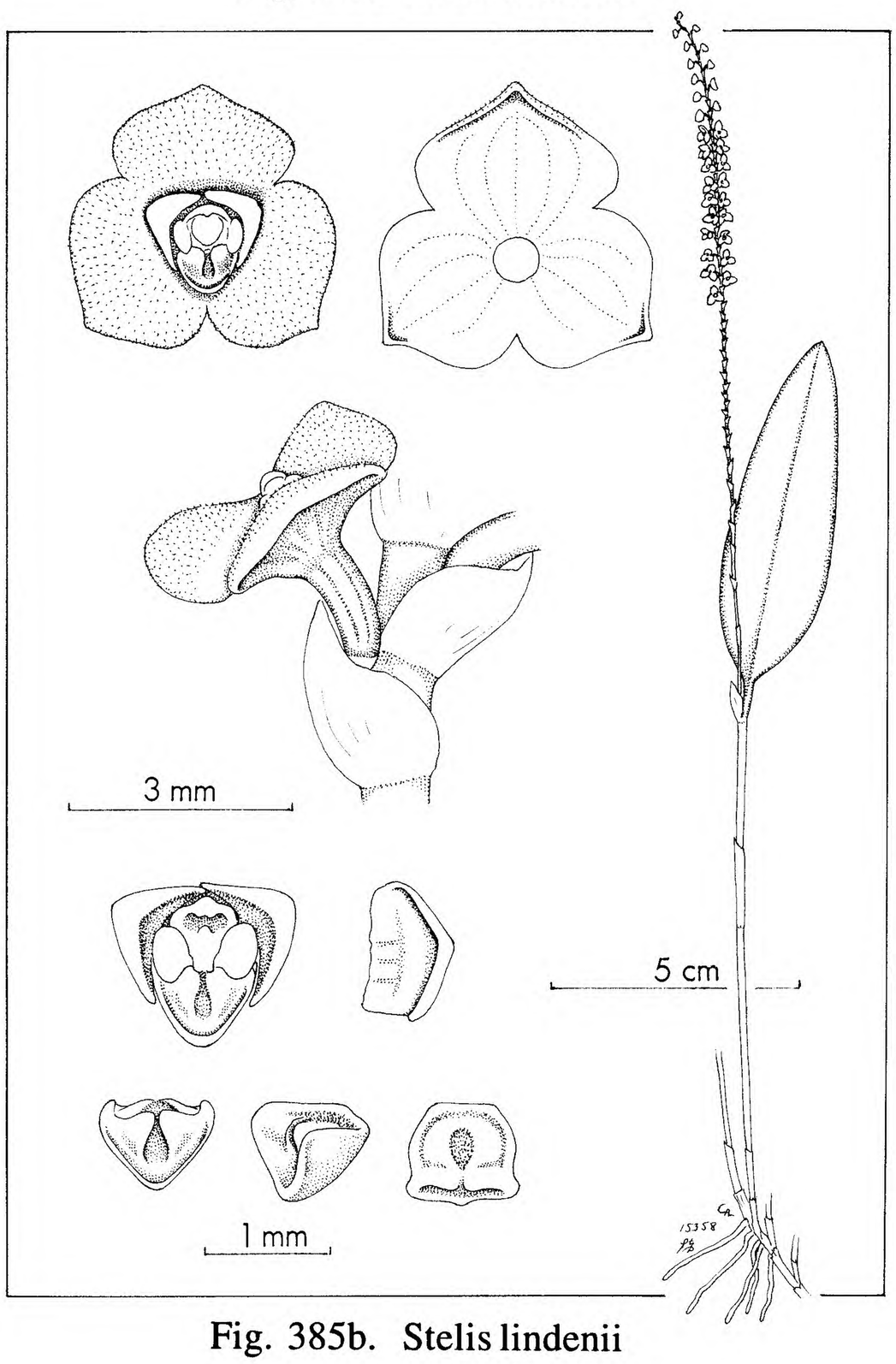


Fig. 385b. Stelis lindenii

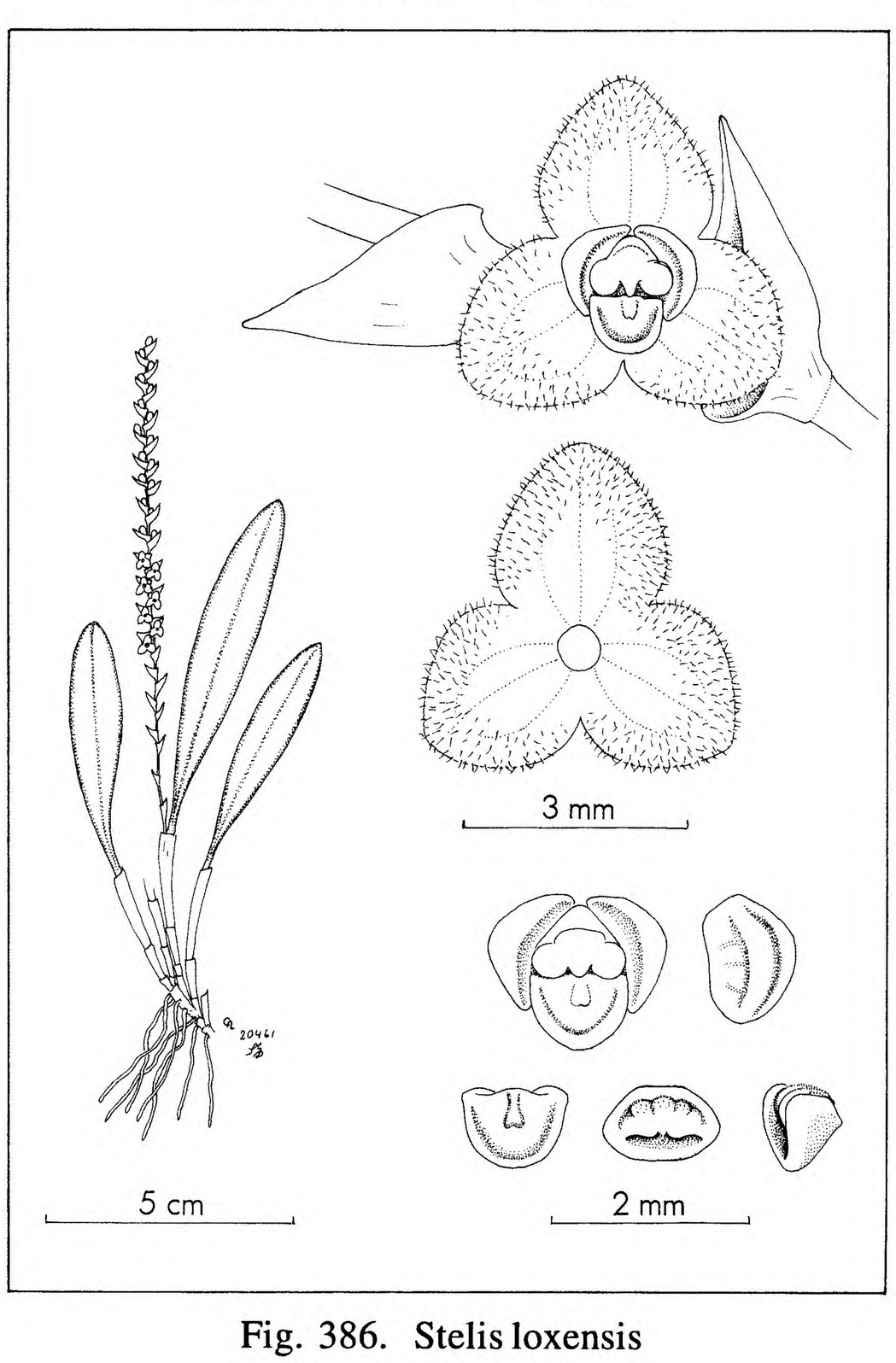


Fig. 386. Stelis loxensis

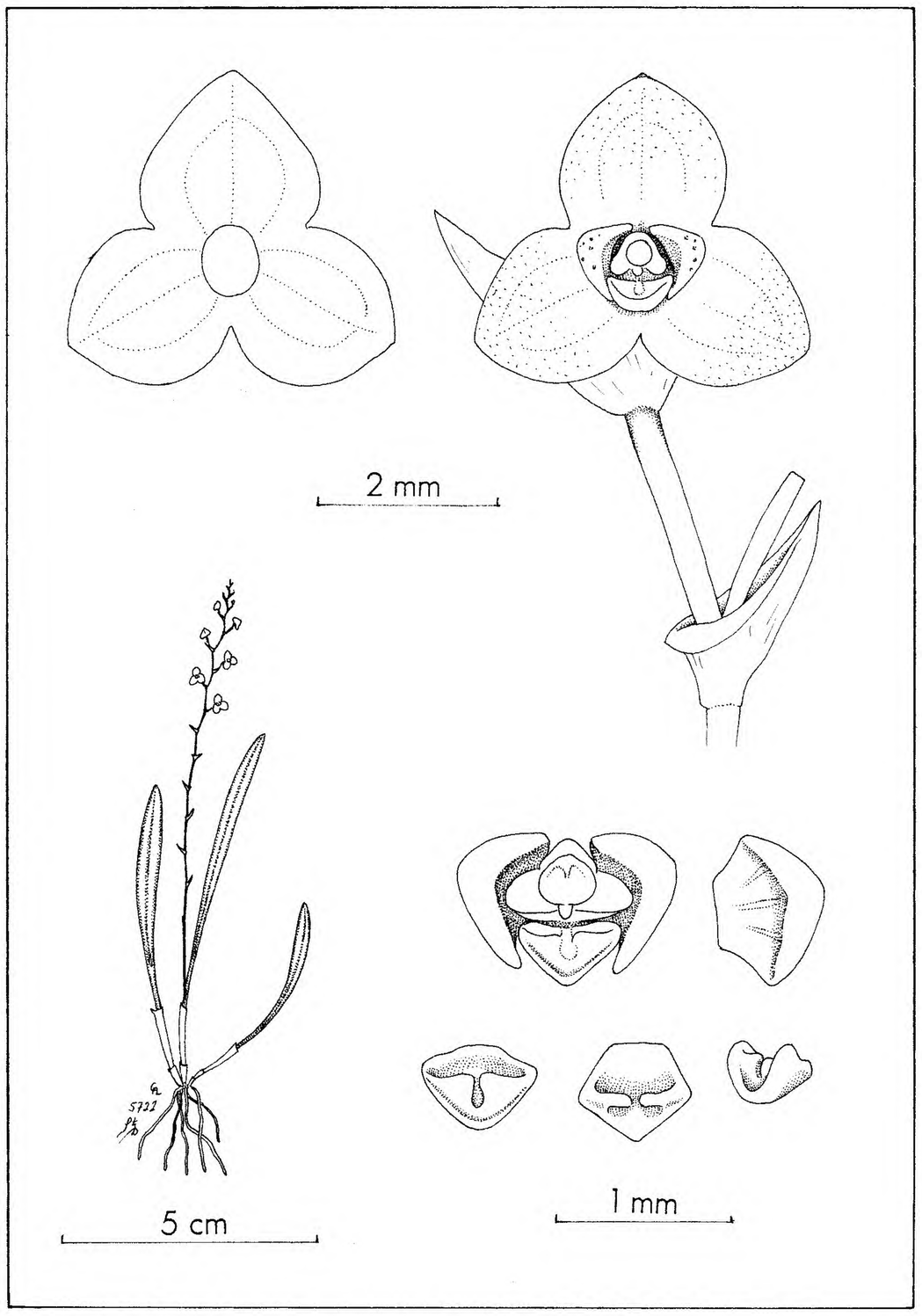


Fig. 387. Stelis lugoi

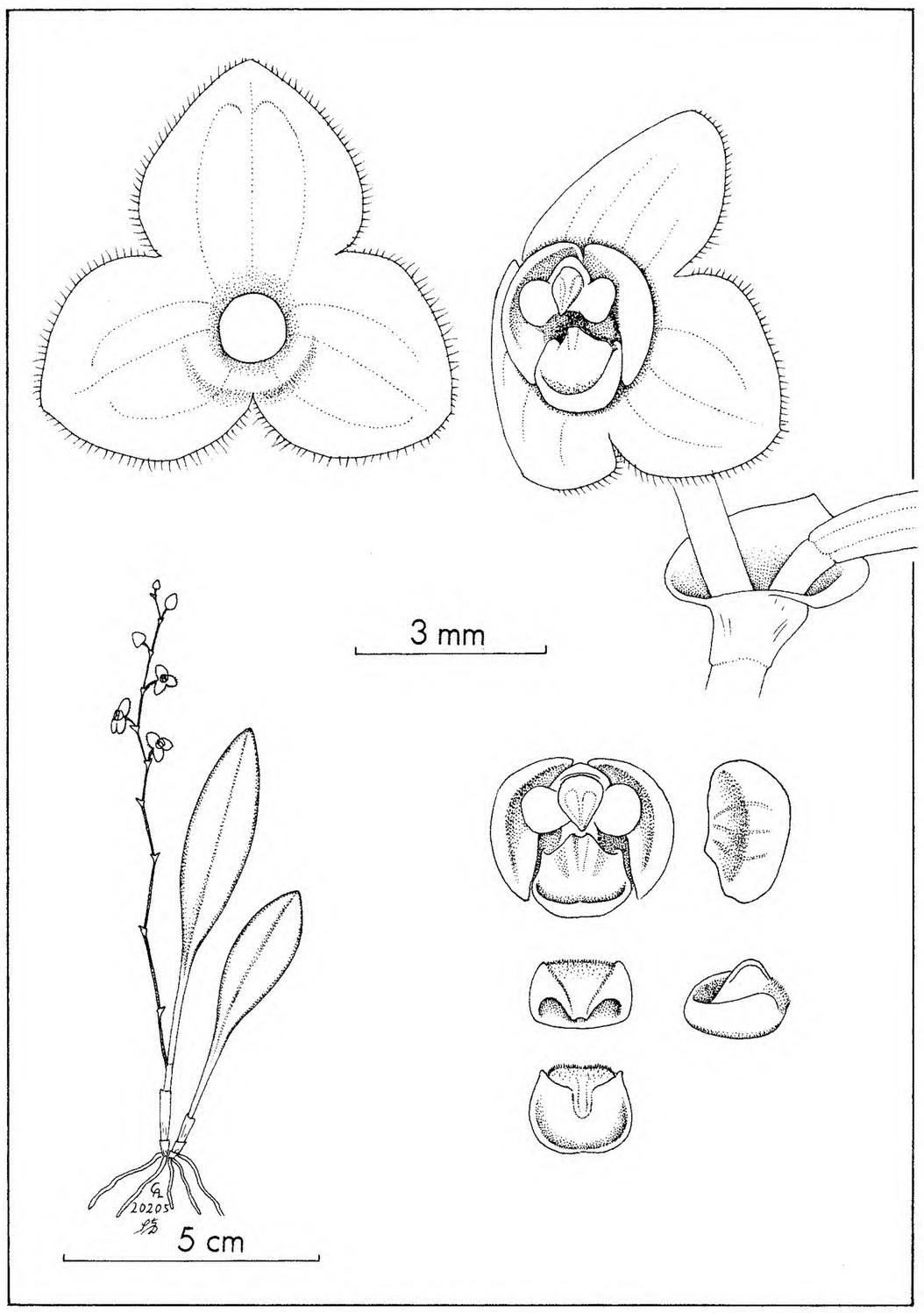


Fig. 388. Stelis majorella

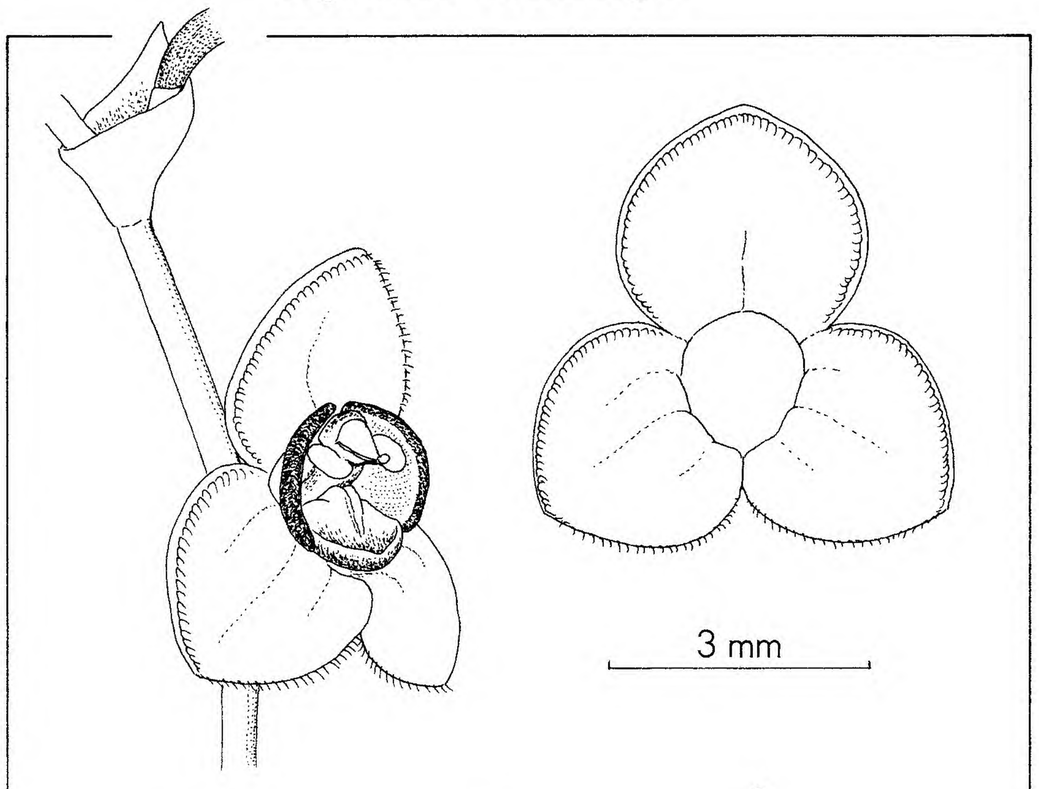


Fig. 388a. Stelis majorella

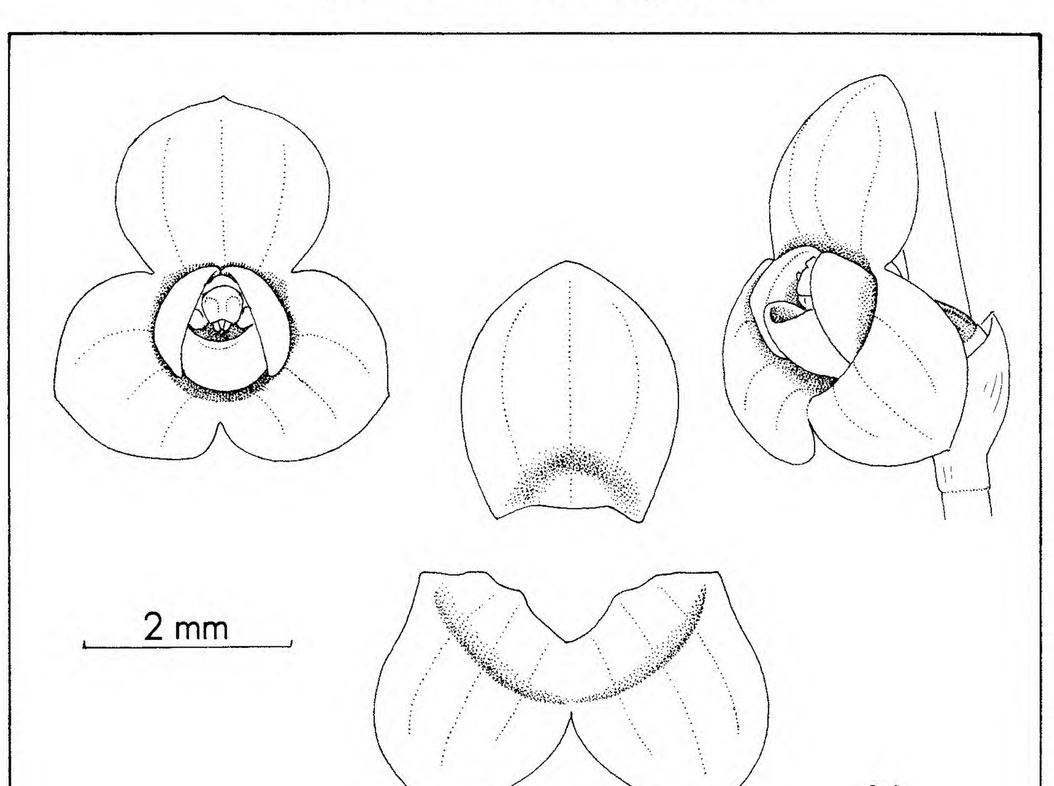


Fig. 389. Stelis maloi

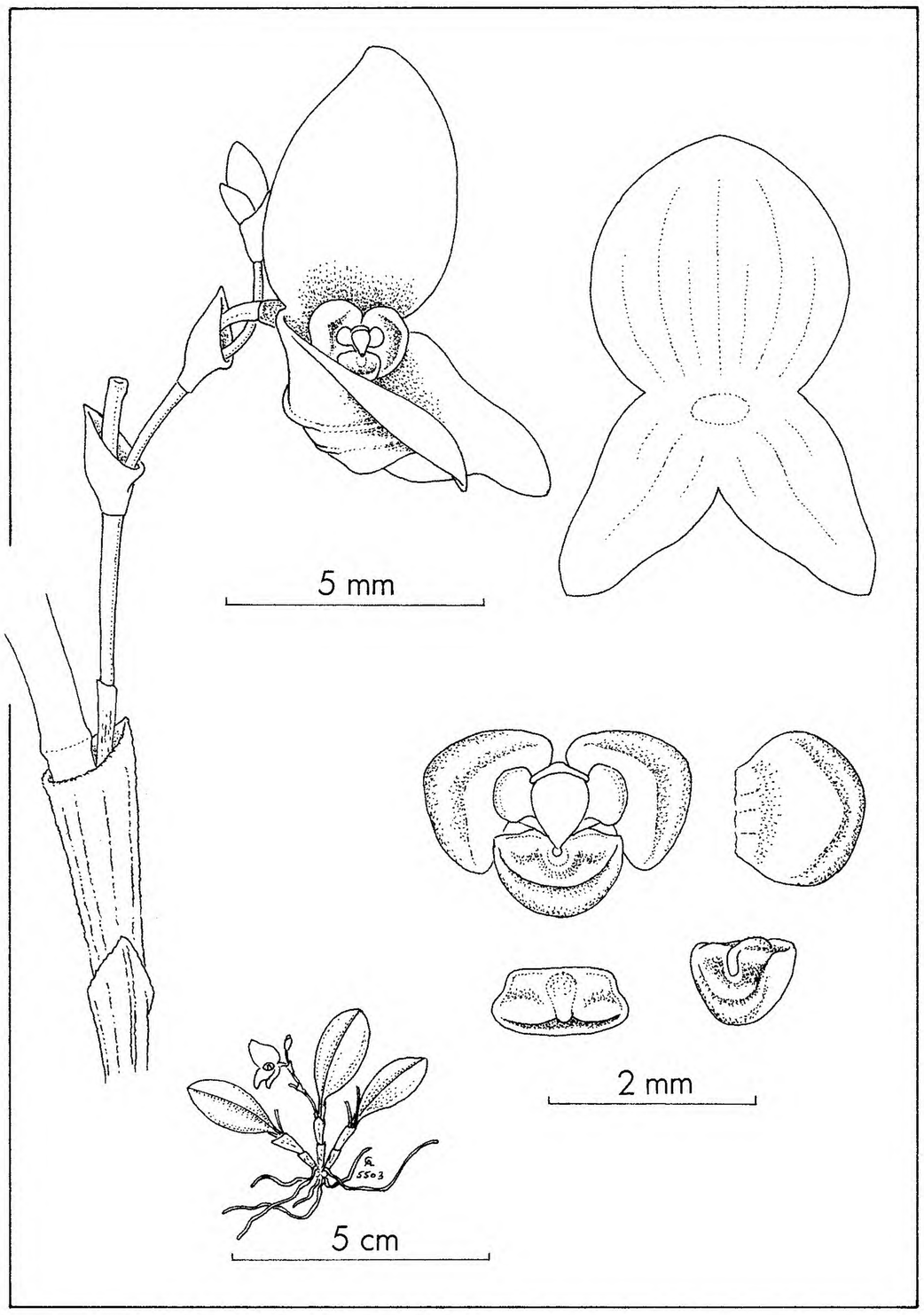


Fig. 390. Stelis megalocephala

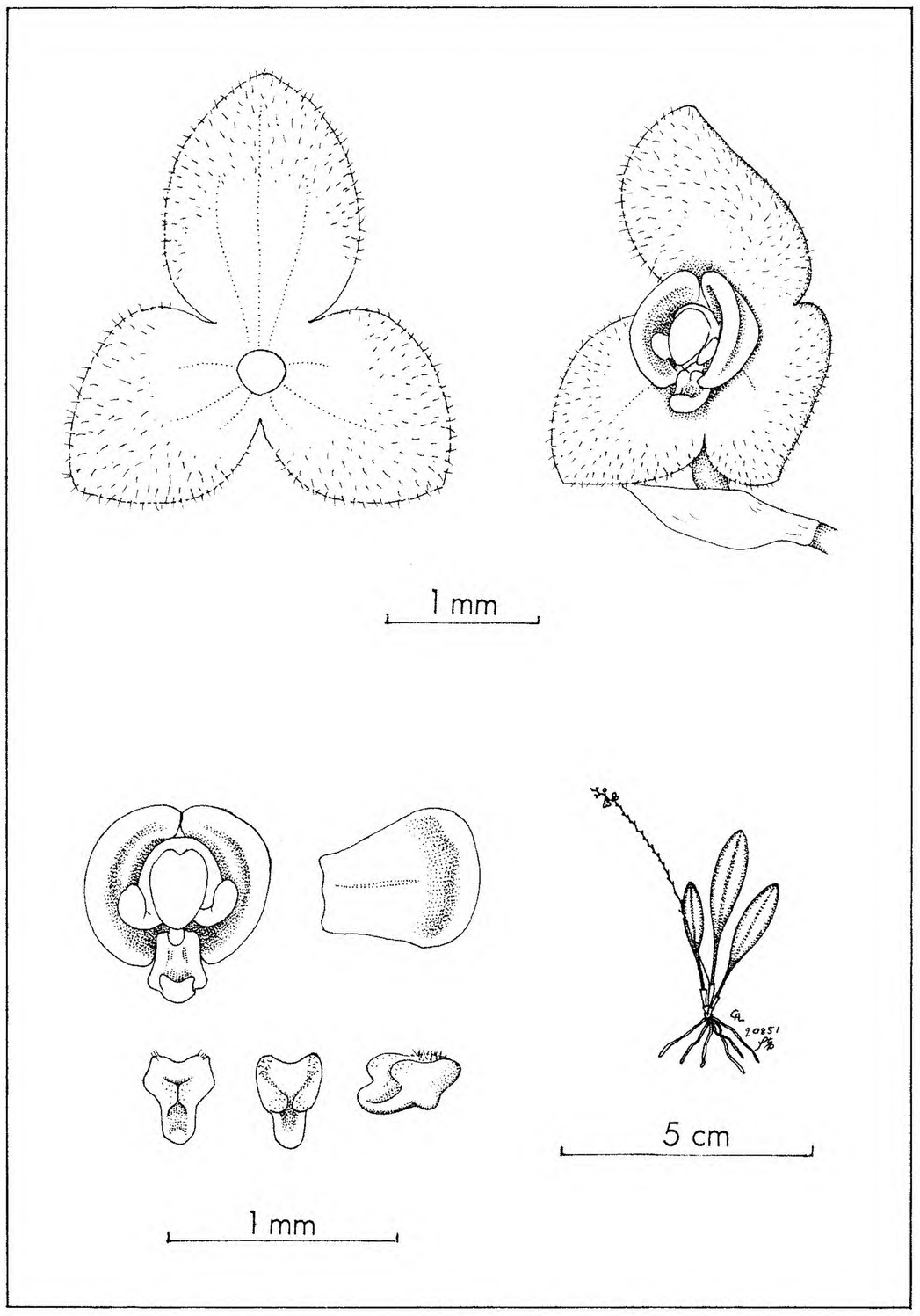


Fig. 391. Stelis microchila

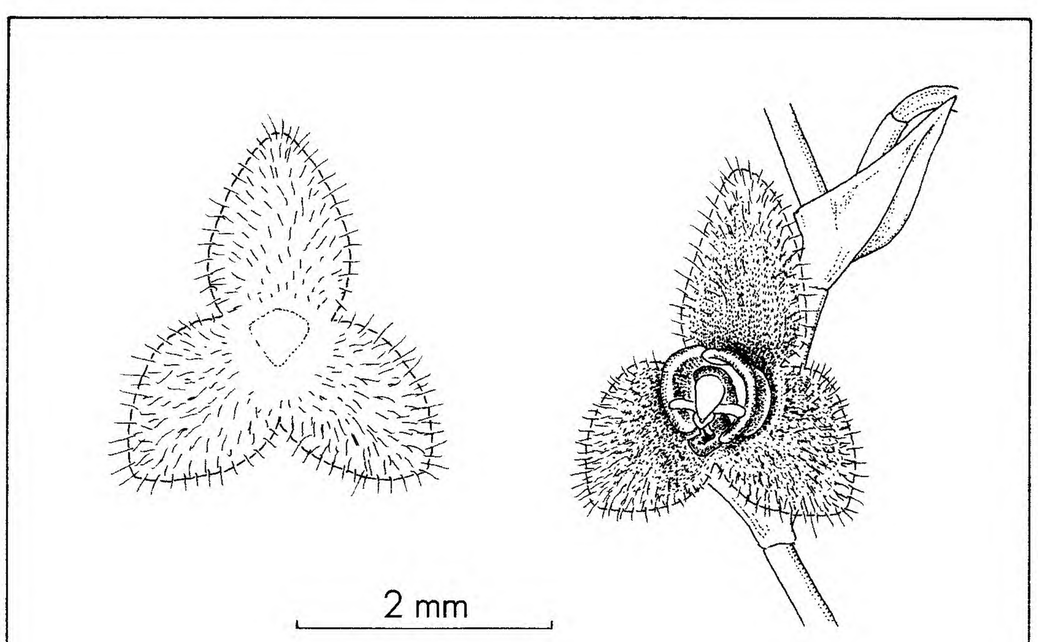


Fig. 391a. Stelis microchila

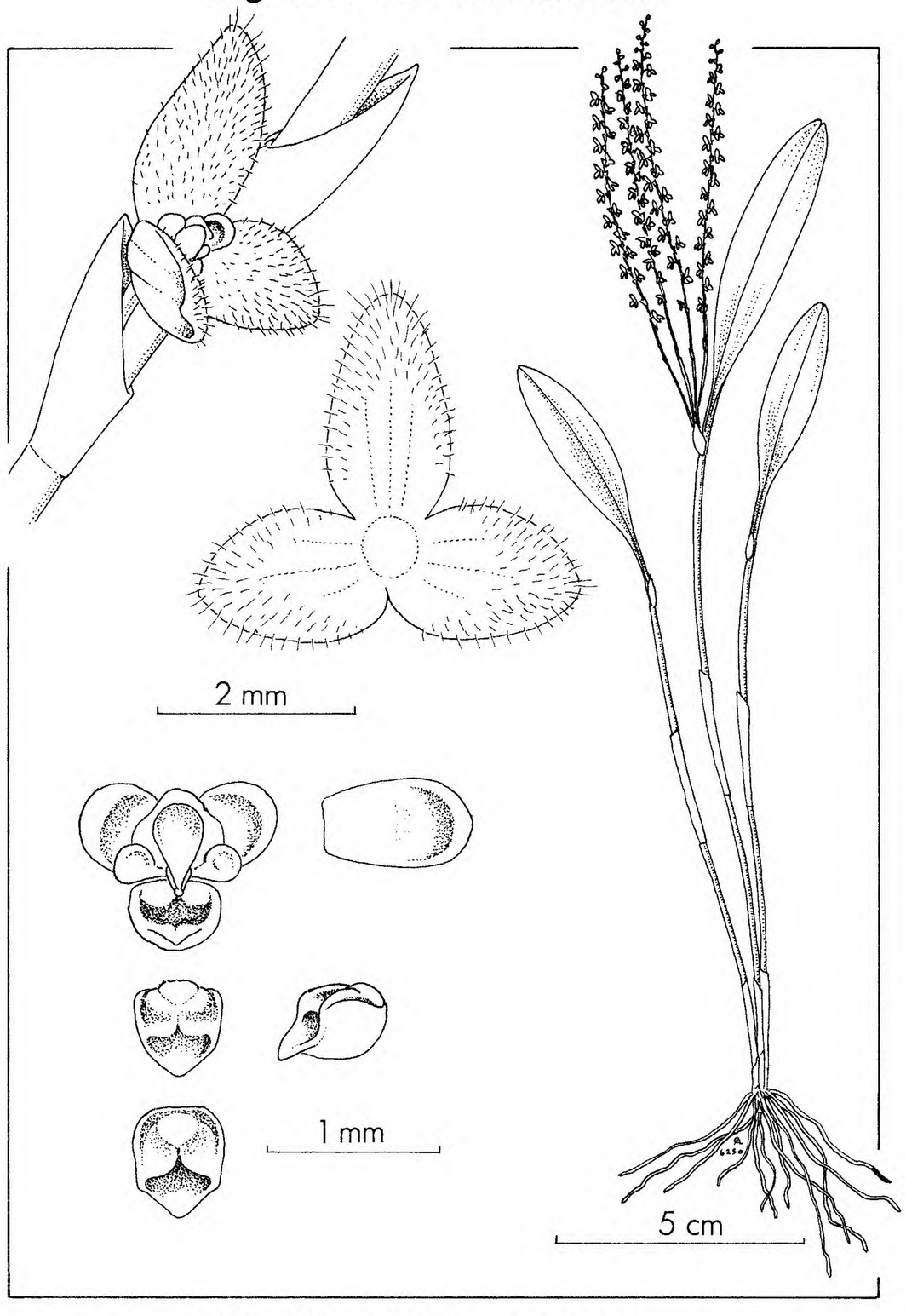


Fig. 392. Stelis mononeura

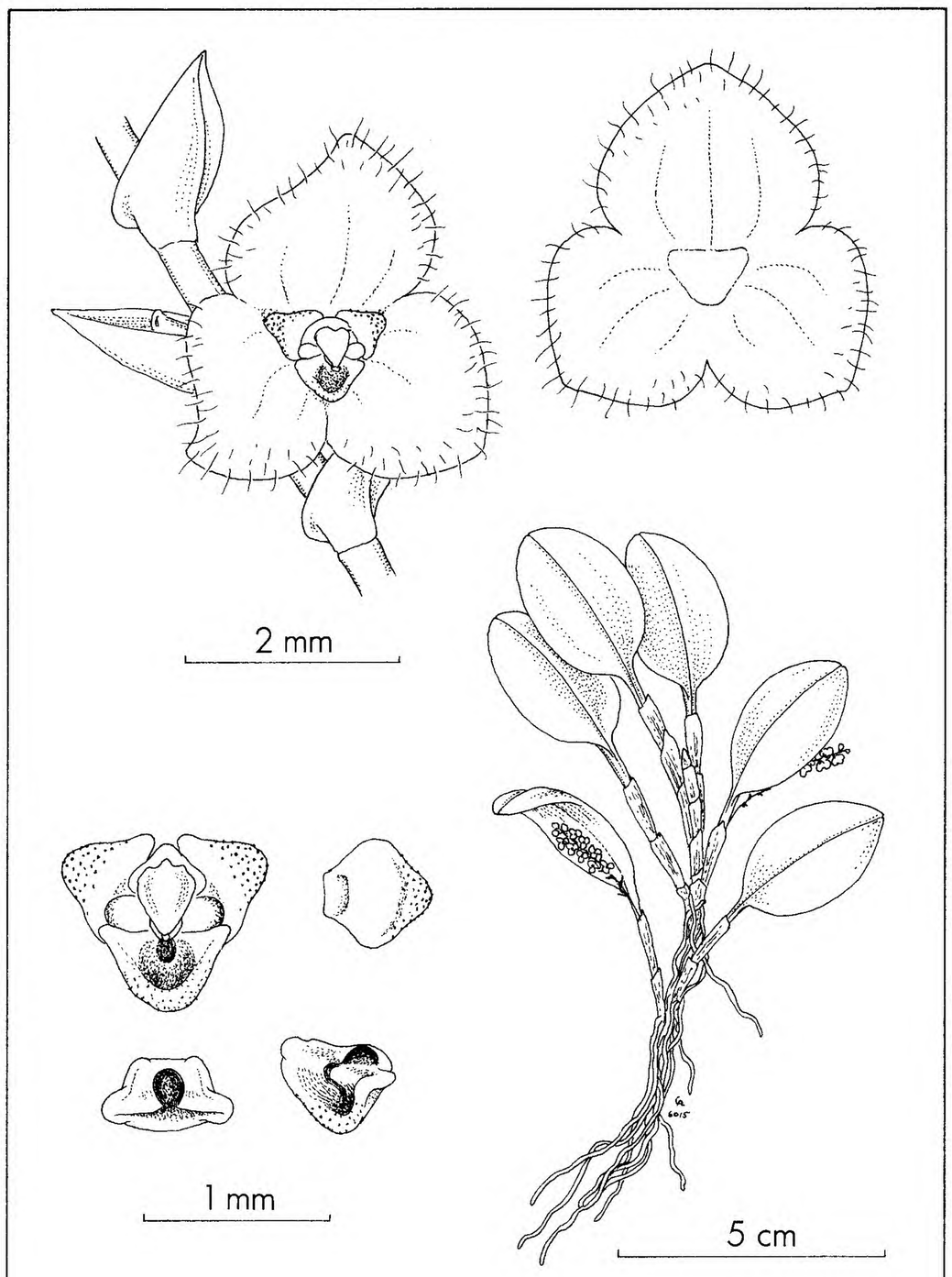


Fig. 393. Stelis morganii

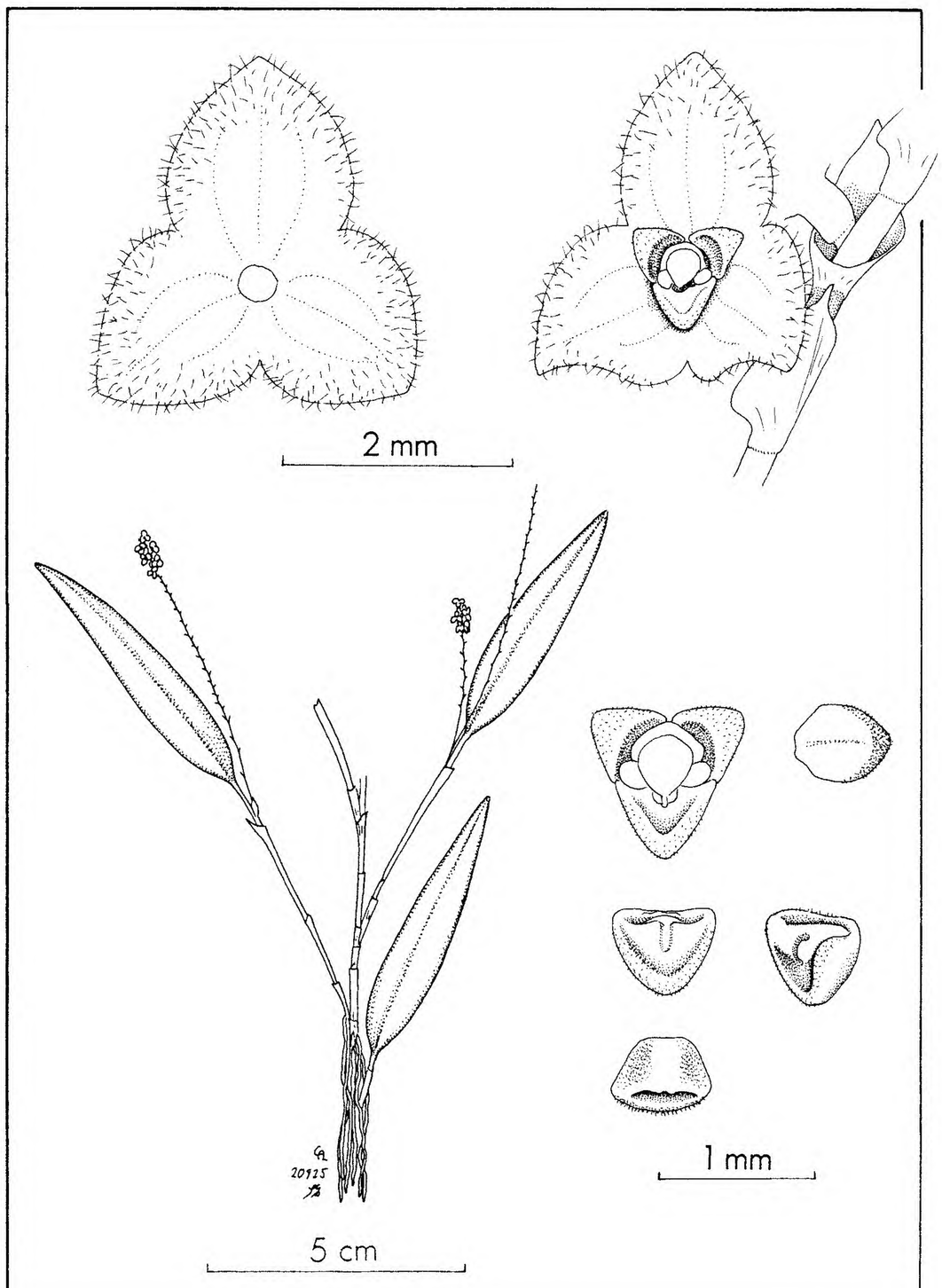


Fig. 393a. Stelis morganii

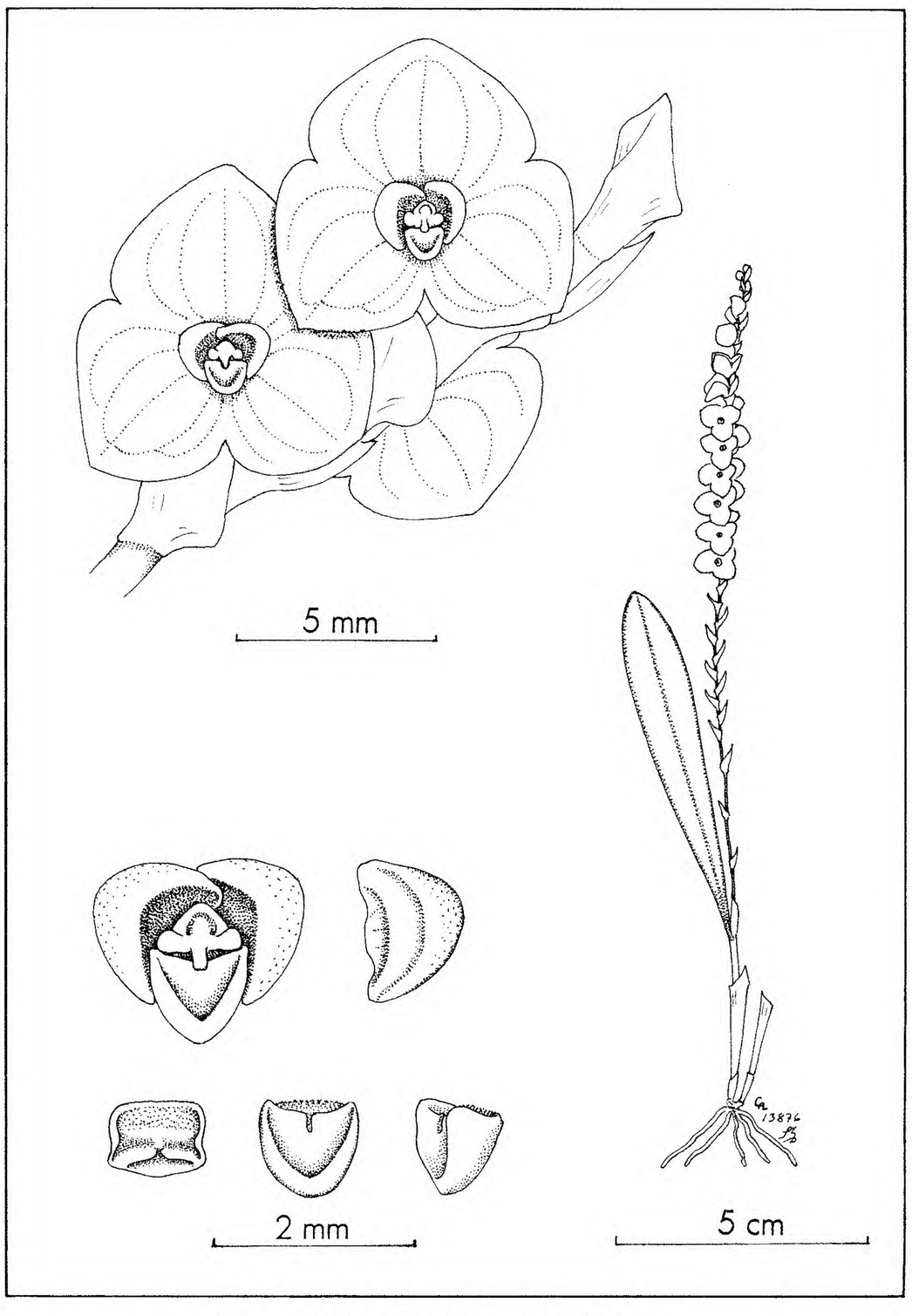


Fig. 394. Stelis muscifera

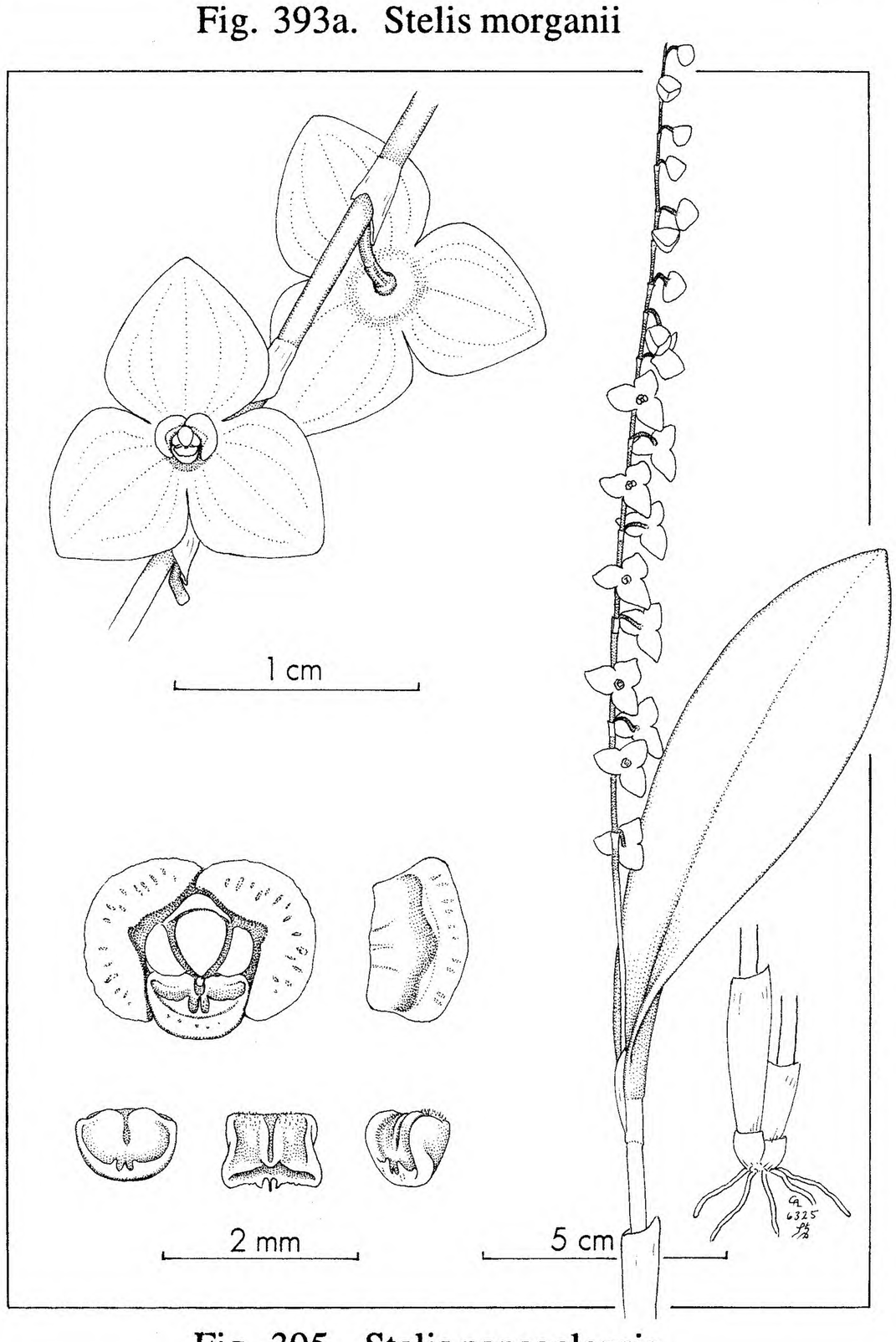


Fig. 395. Stelis nanegalensis

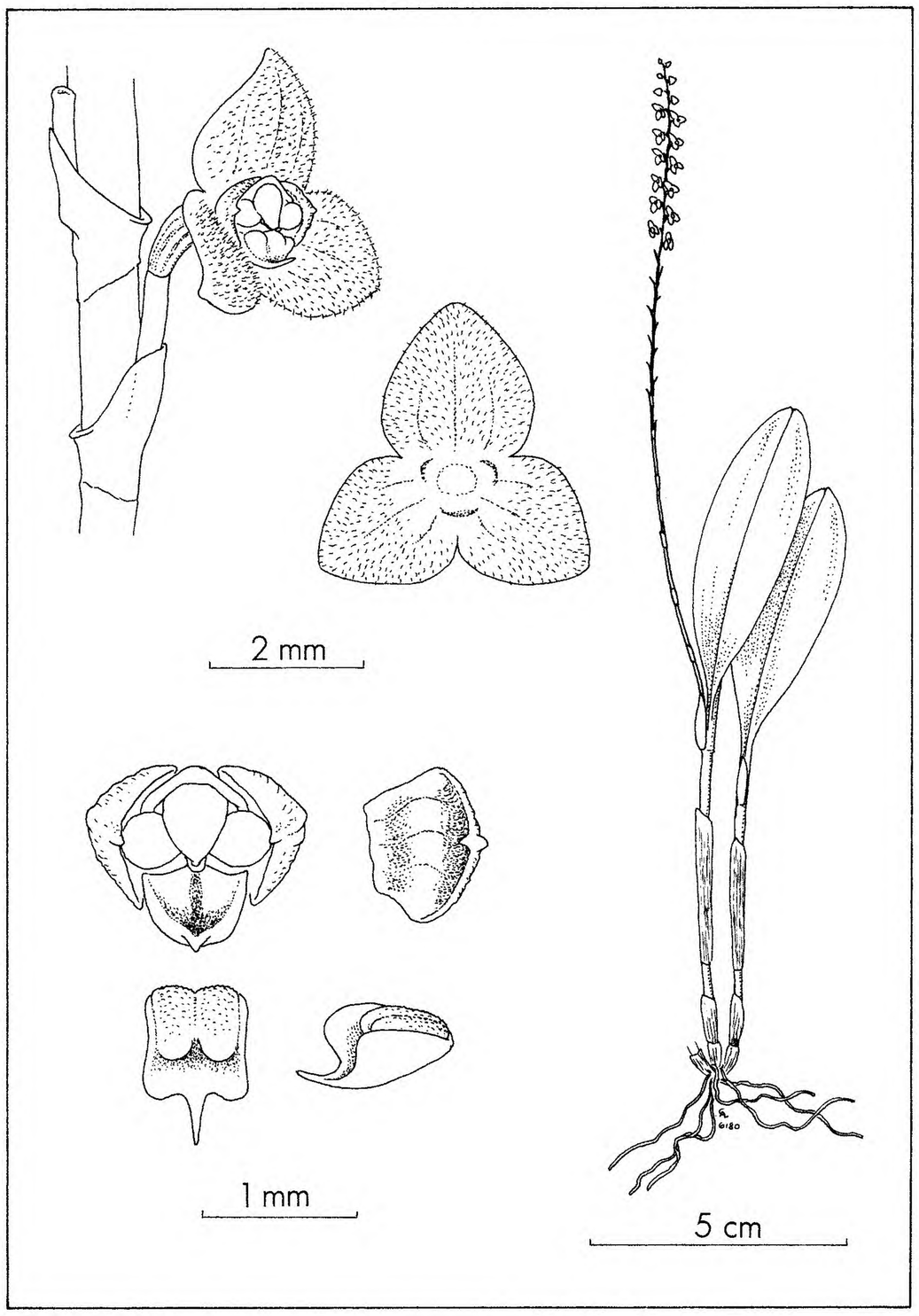


Fig. 50. Stelis oblonga

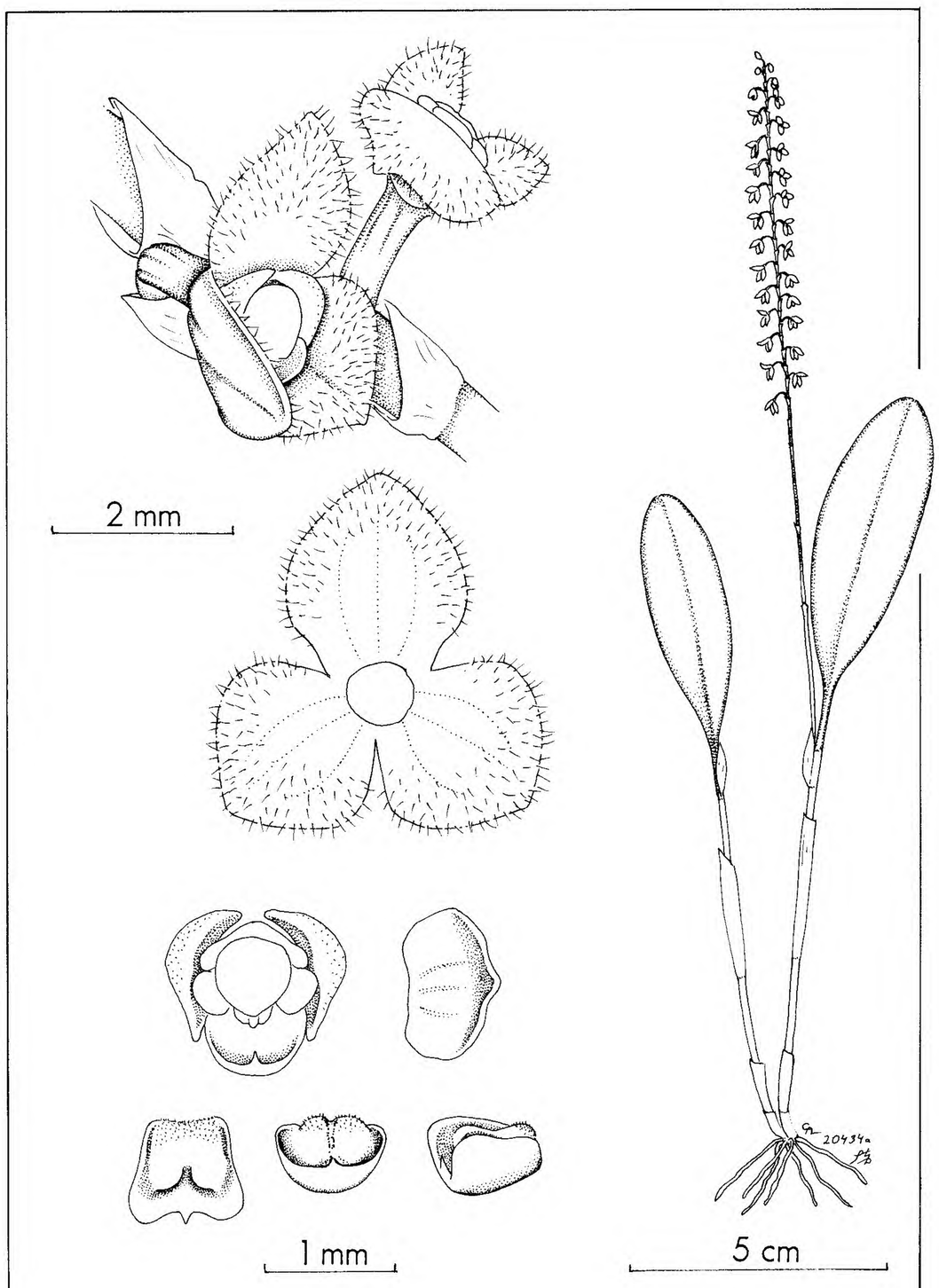


Fig. 50a. Stelis oblonga

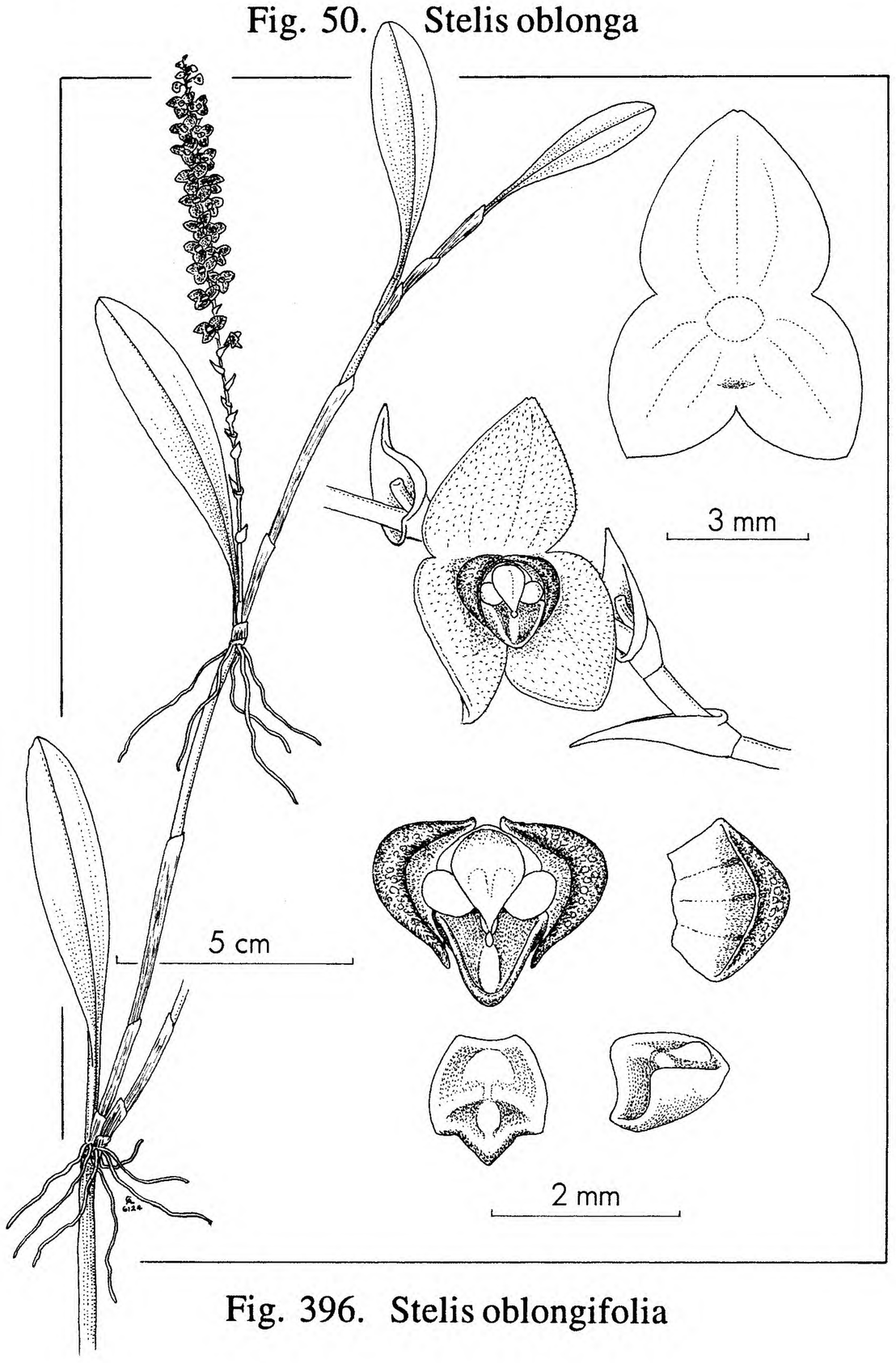


Fig. 396. Stelis oblongifolia

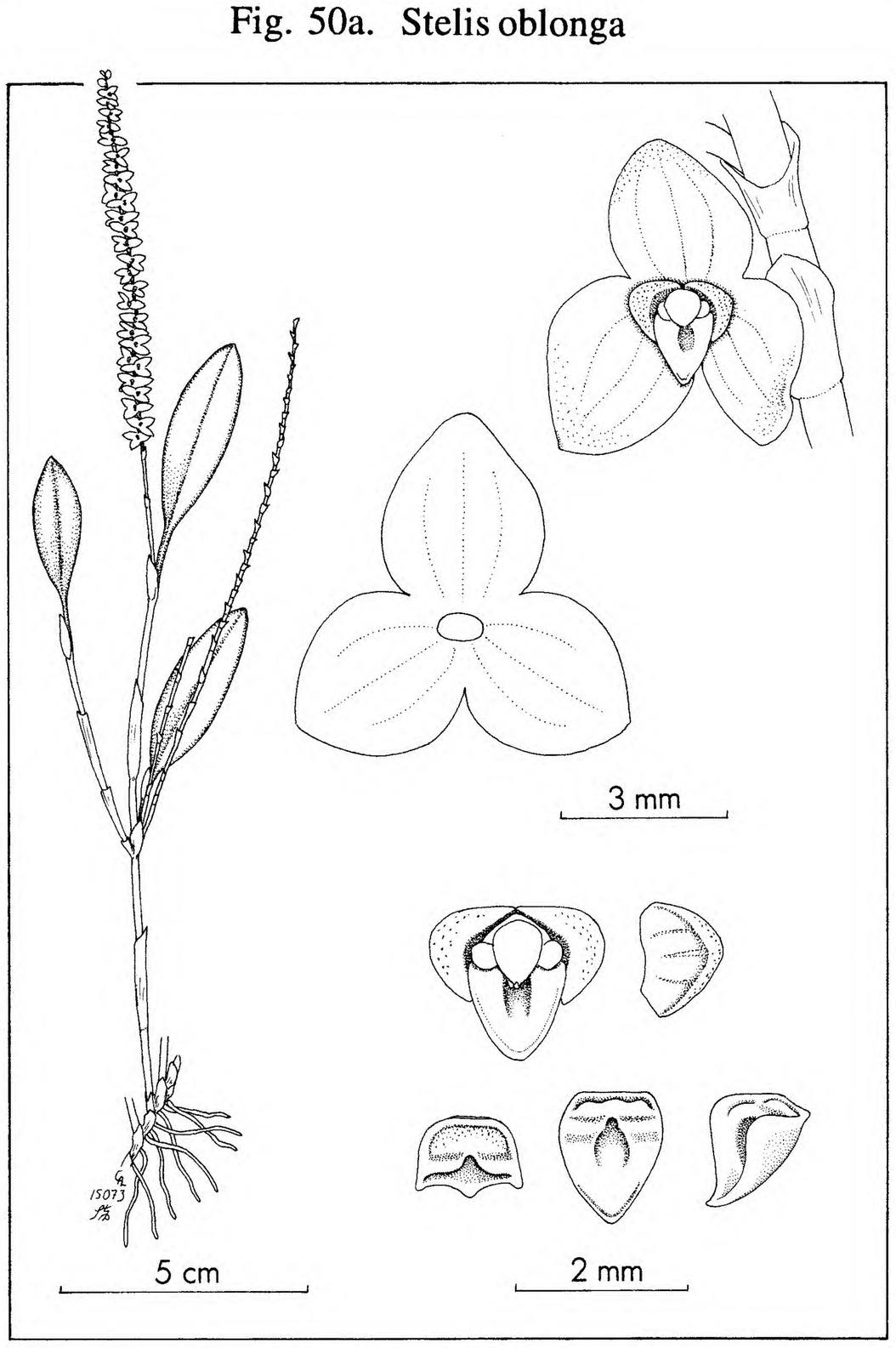


Fig. 396a. Stelis oblongifolia

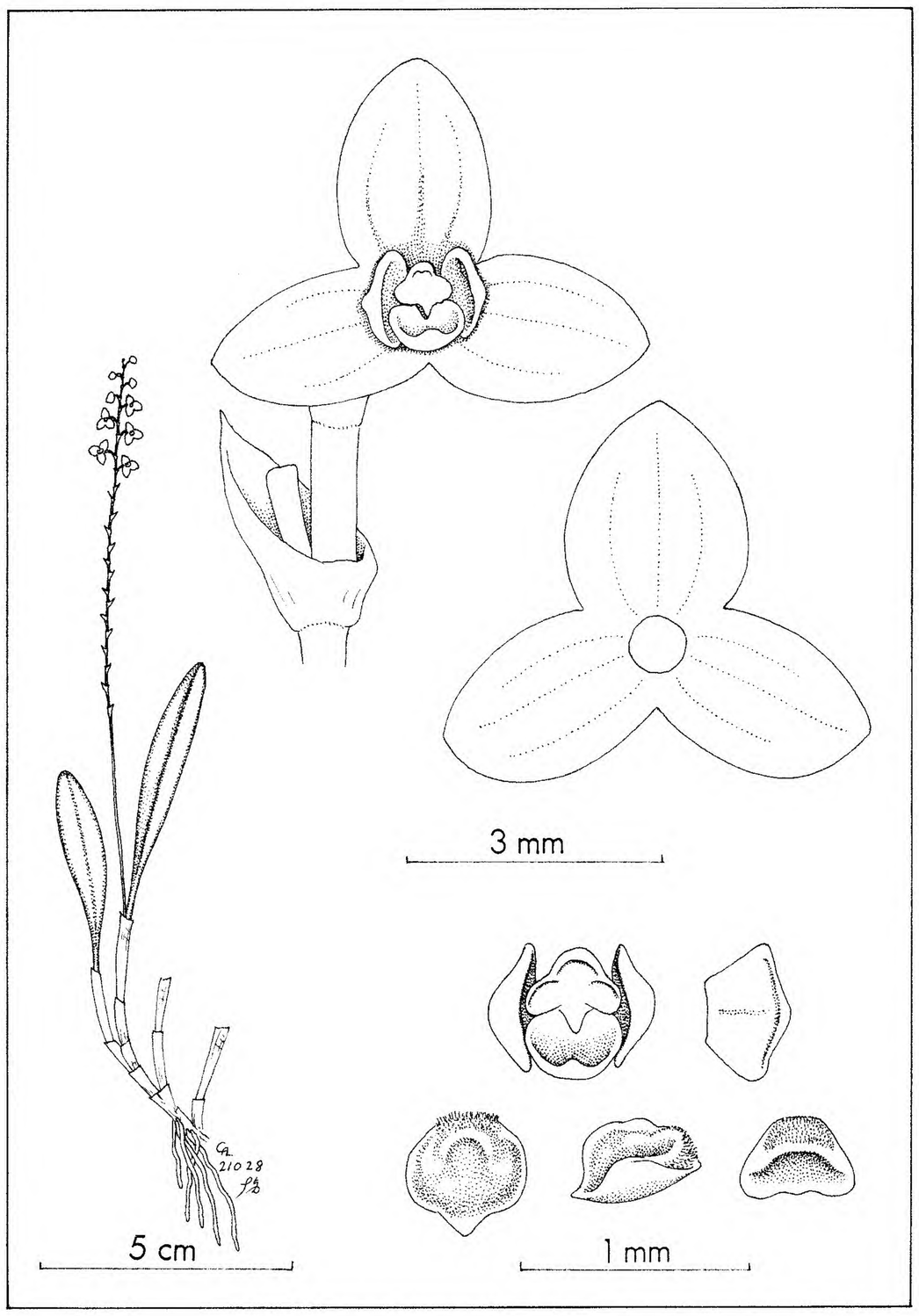


Fig. 397. Stelis oreada

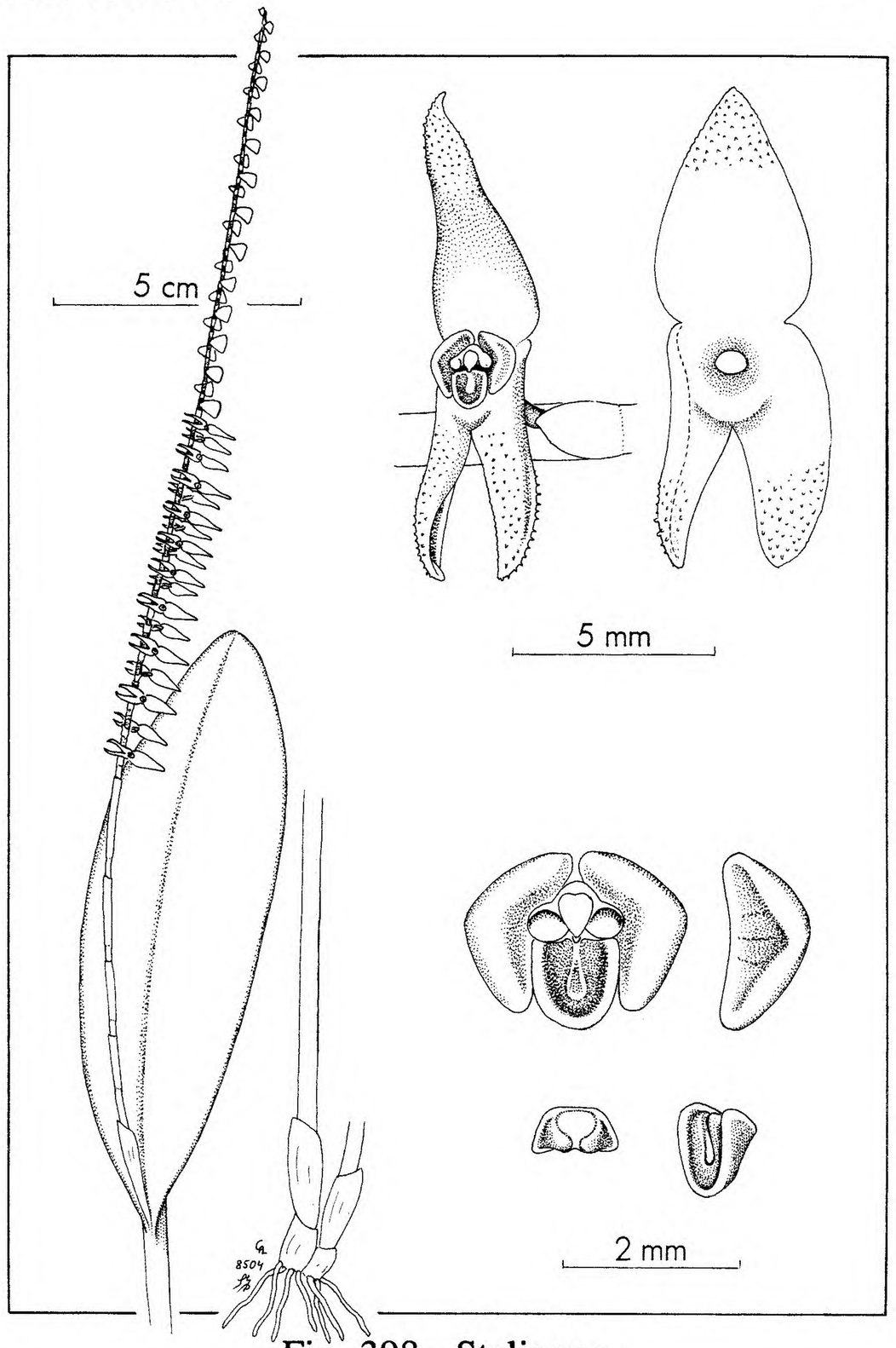


Fig. 398. Stelis pan

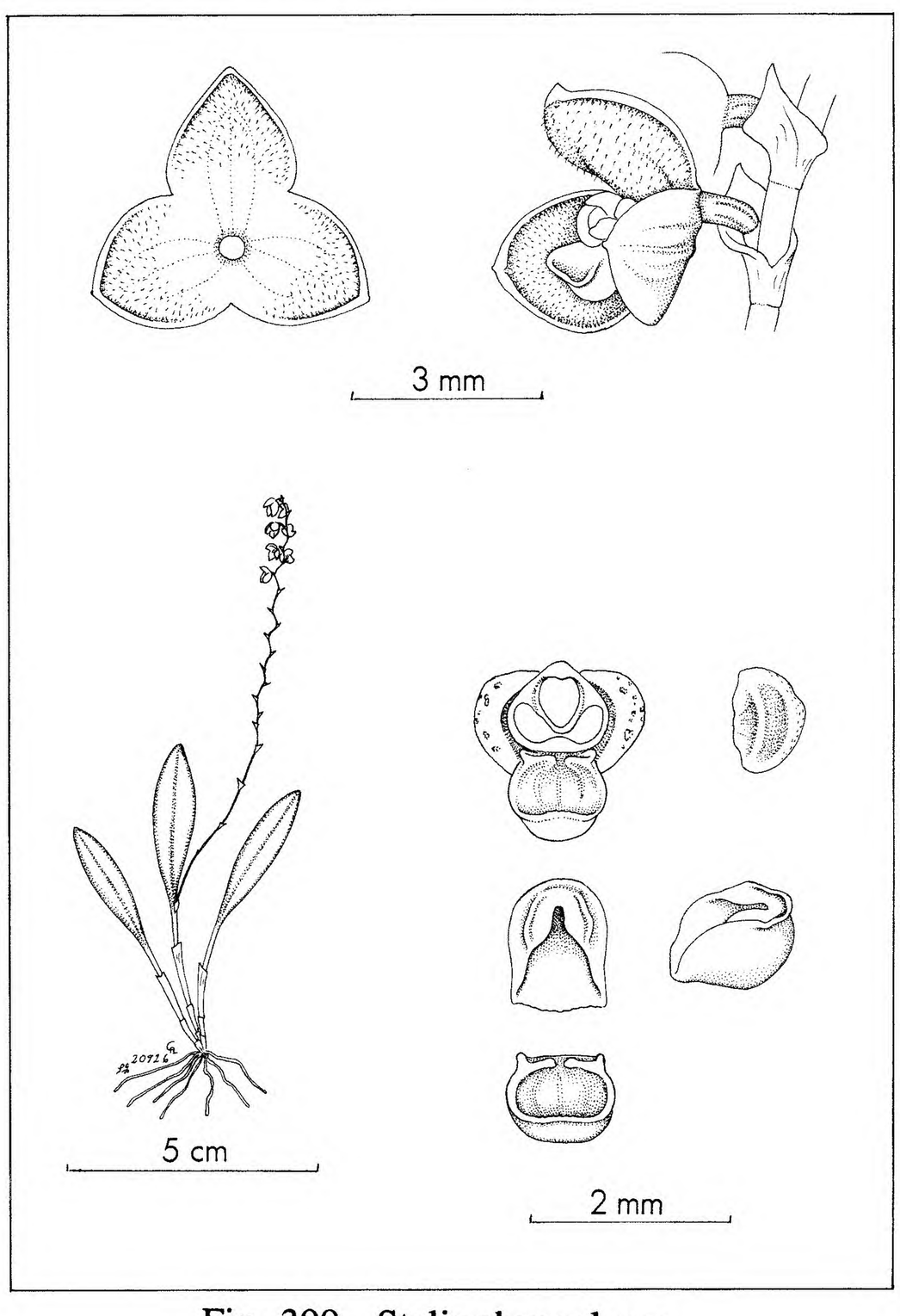


Fig. 399. Stelis physoglossa

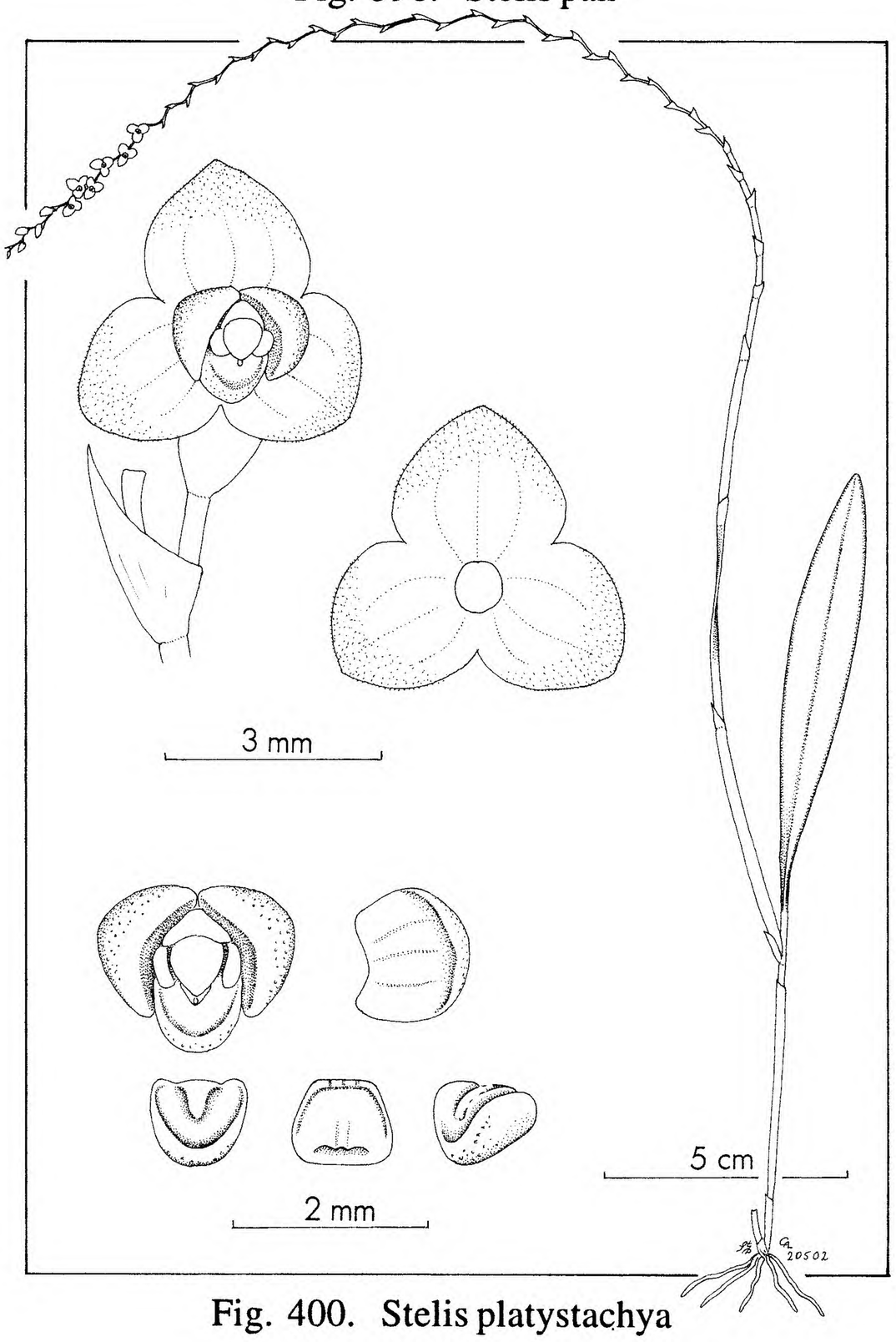


Fig. 400. Stelis platystachya

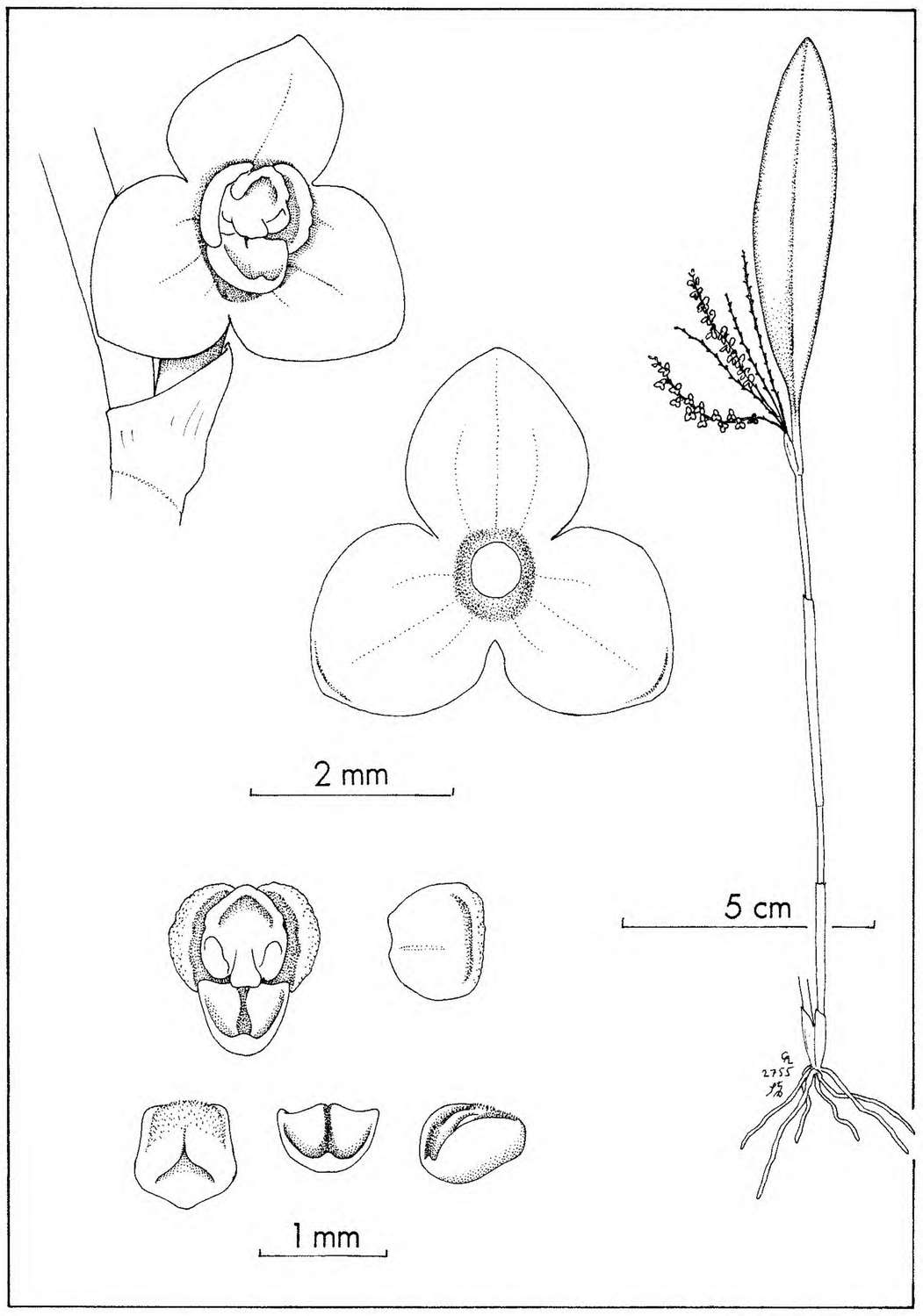


Fig. 401. Stelis polybotrya

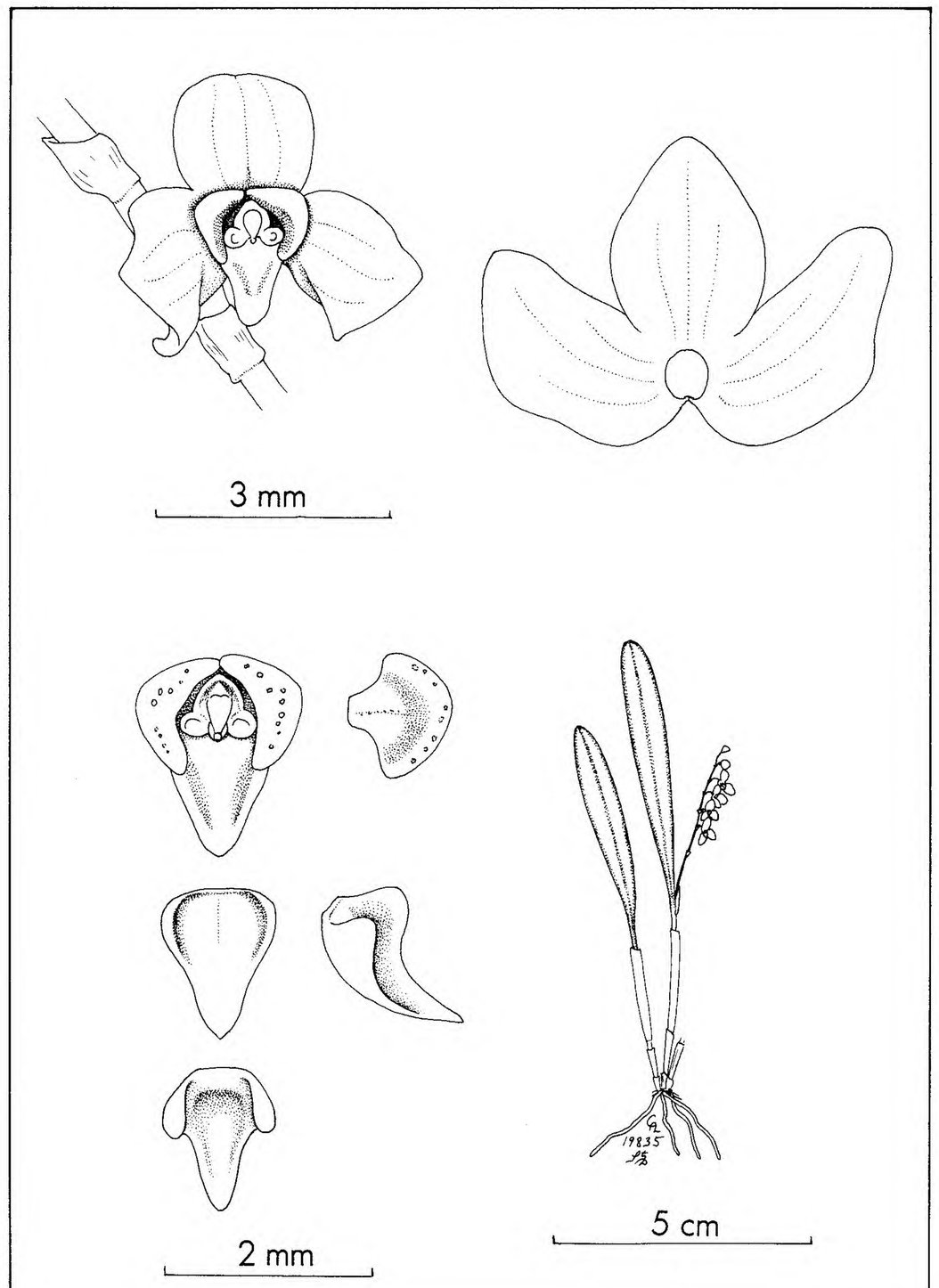


Fig. 402. Stelis porpax

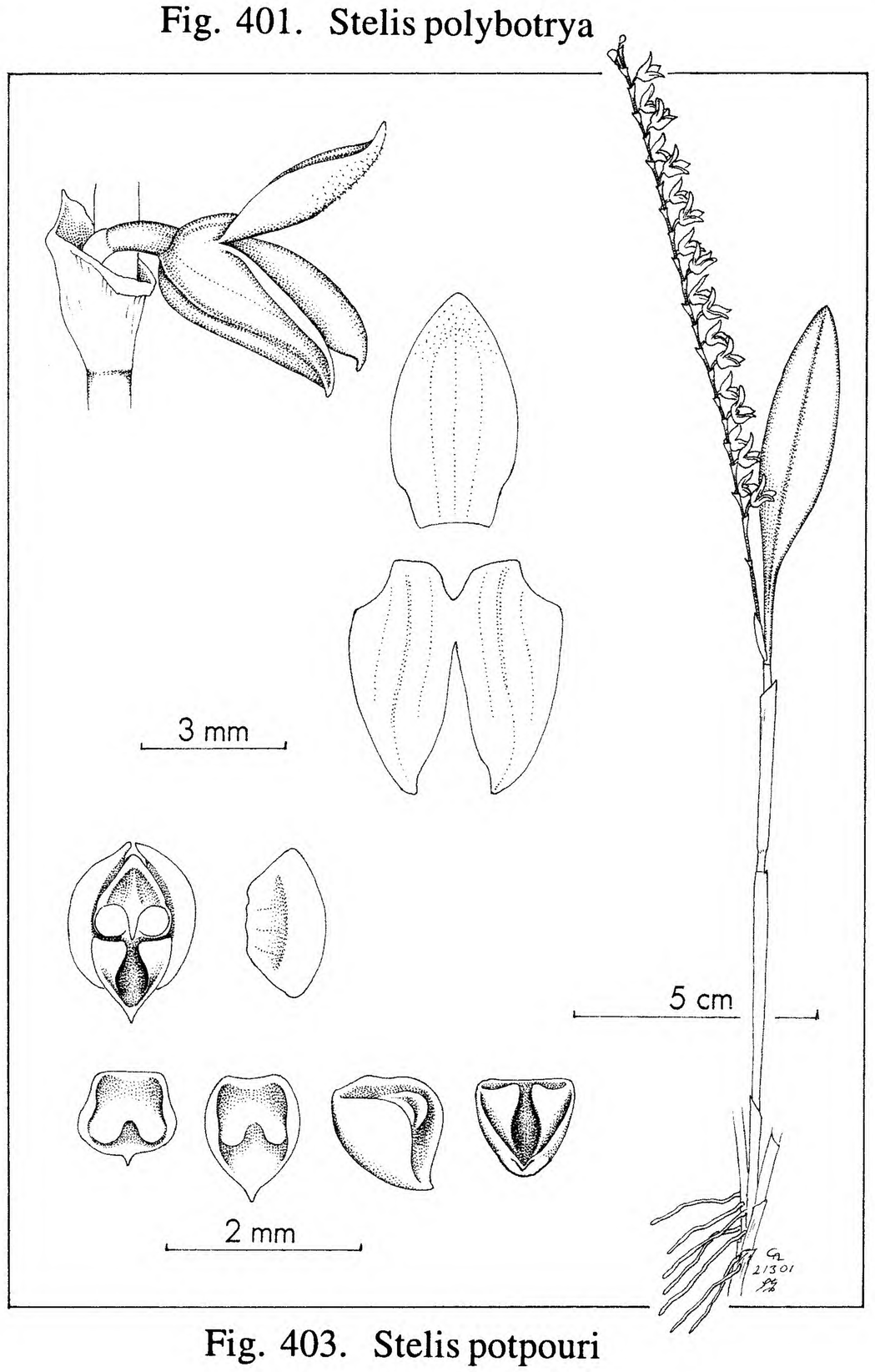


Fig. 403. Stelis potpouri

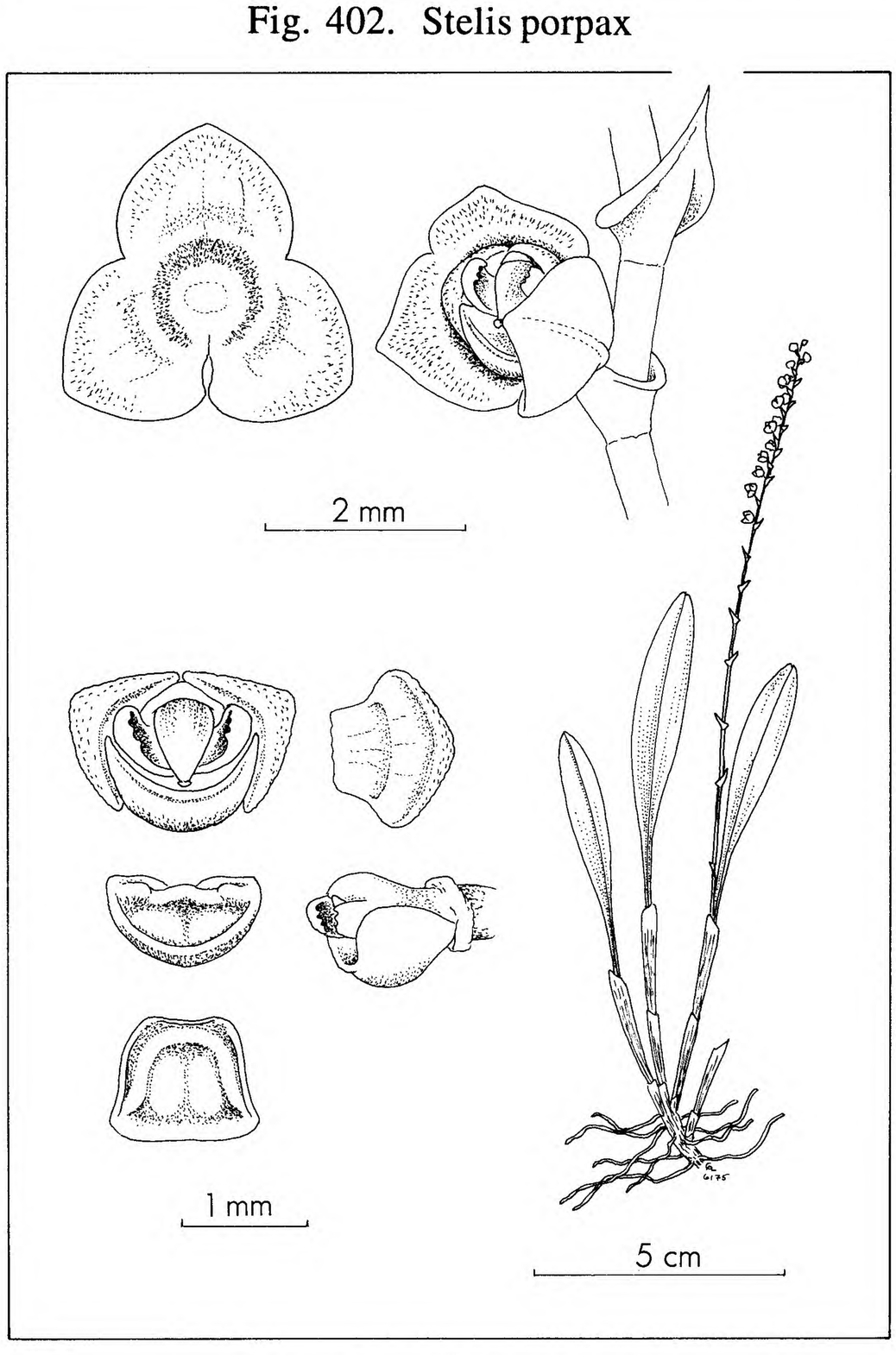


Fig. 404. Stelis pudens

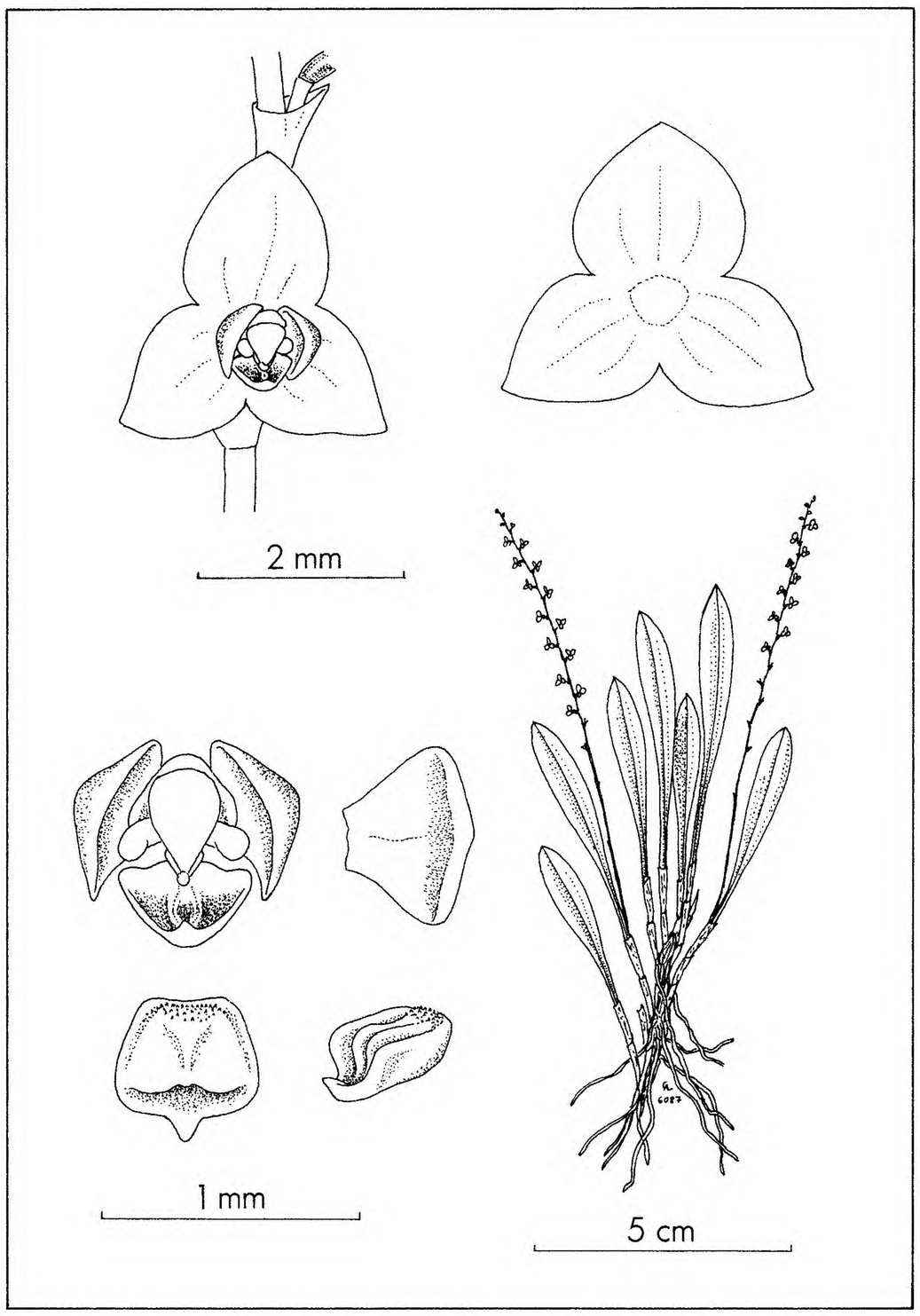


Fig. 405. Stelis pusilla

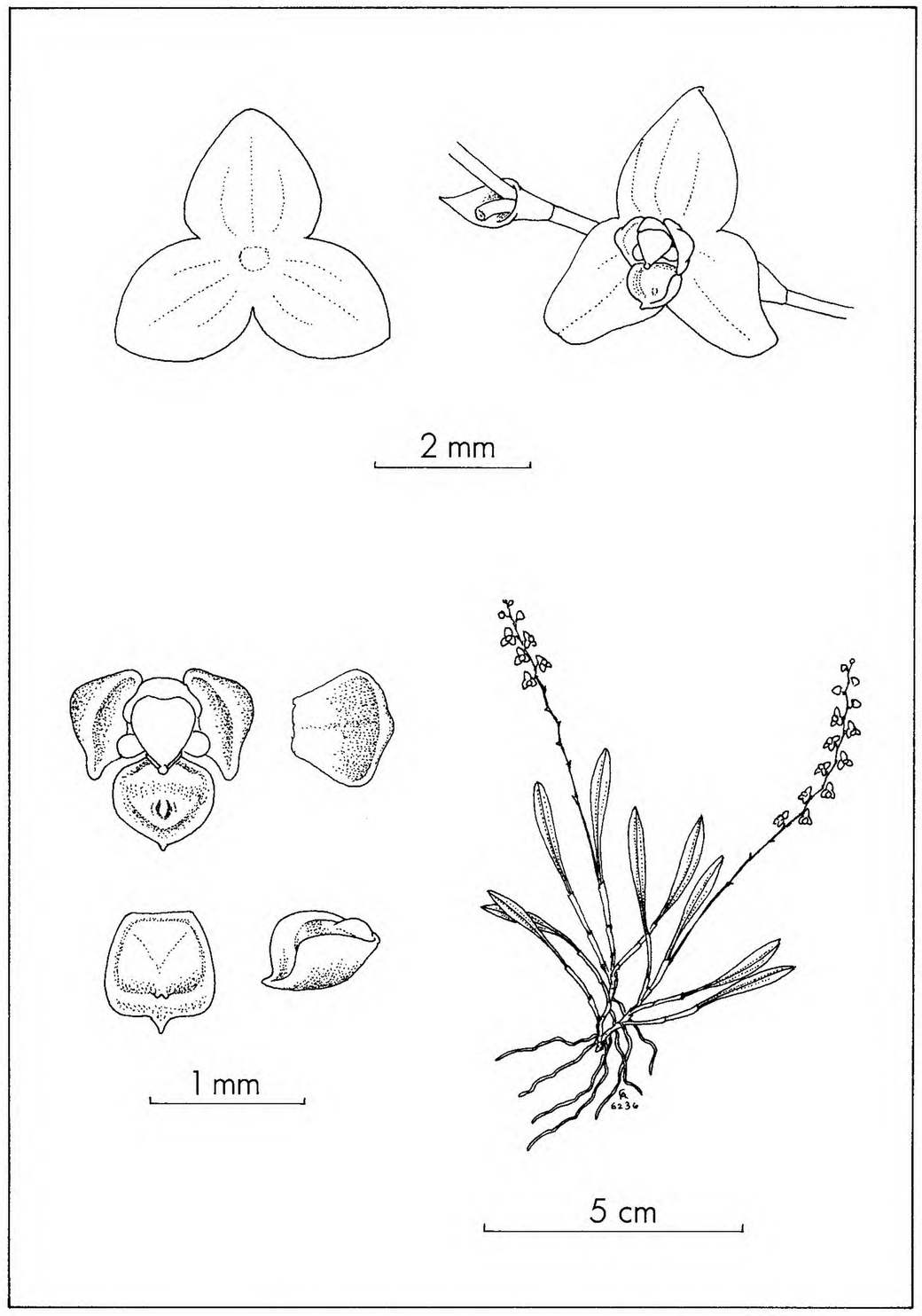


Fig. 405a. Stelis pusilla

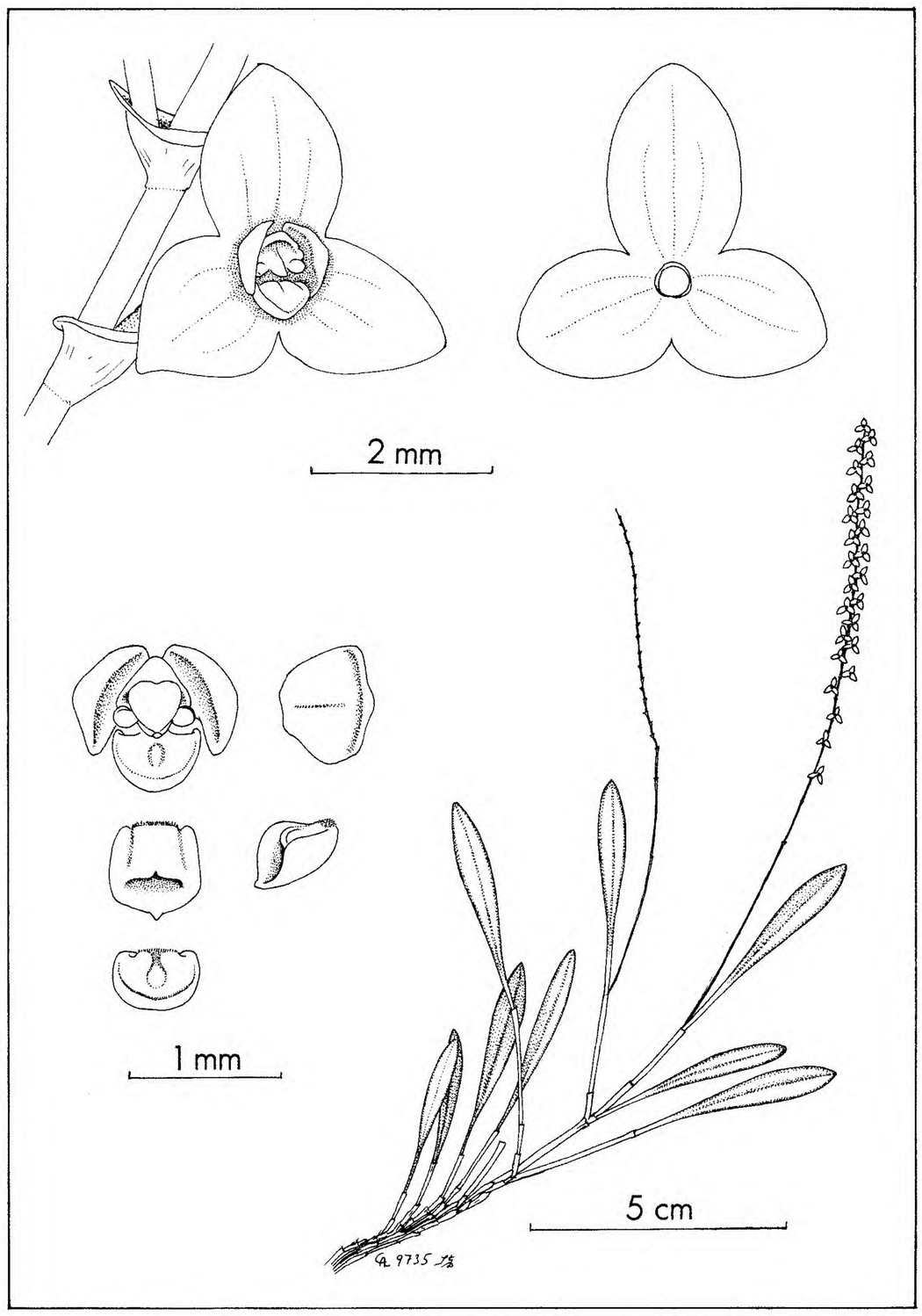


Fig. 405b. Stelis pusilla

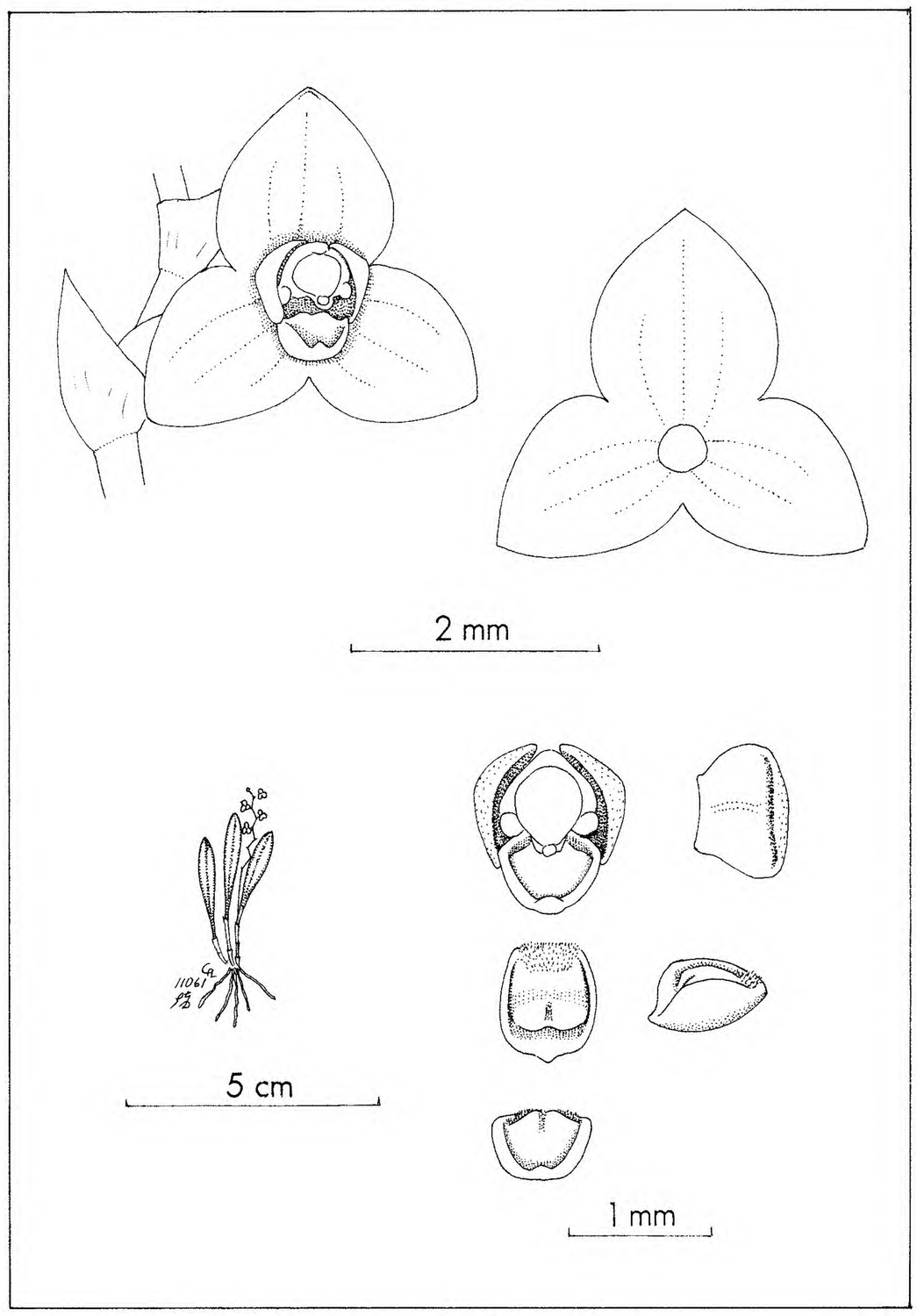


Fig. 405c. Stelis pusilla

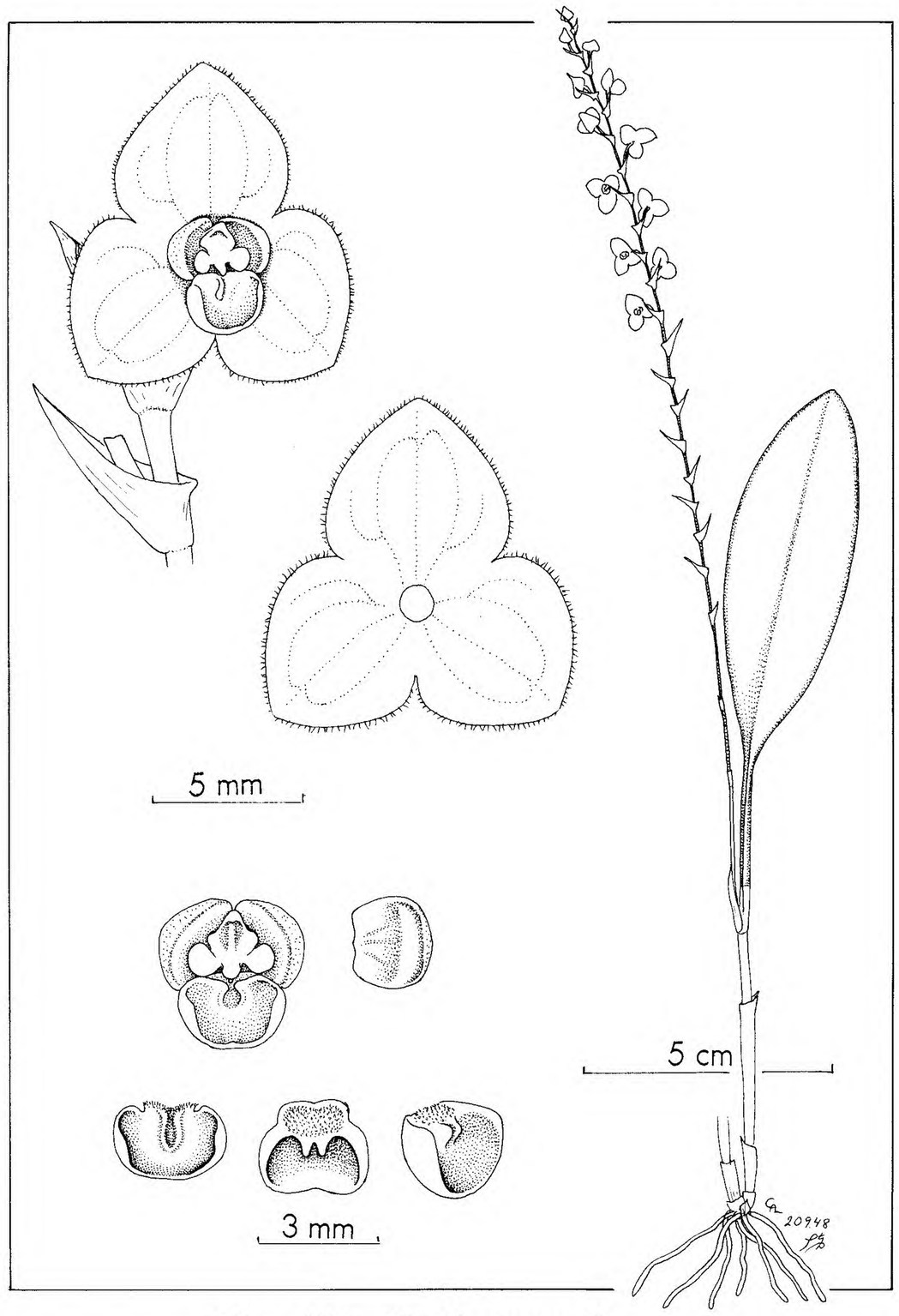


Fig. 406. Stelis ramosii

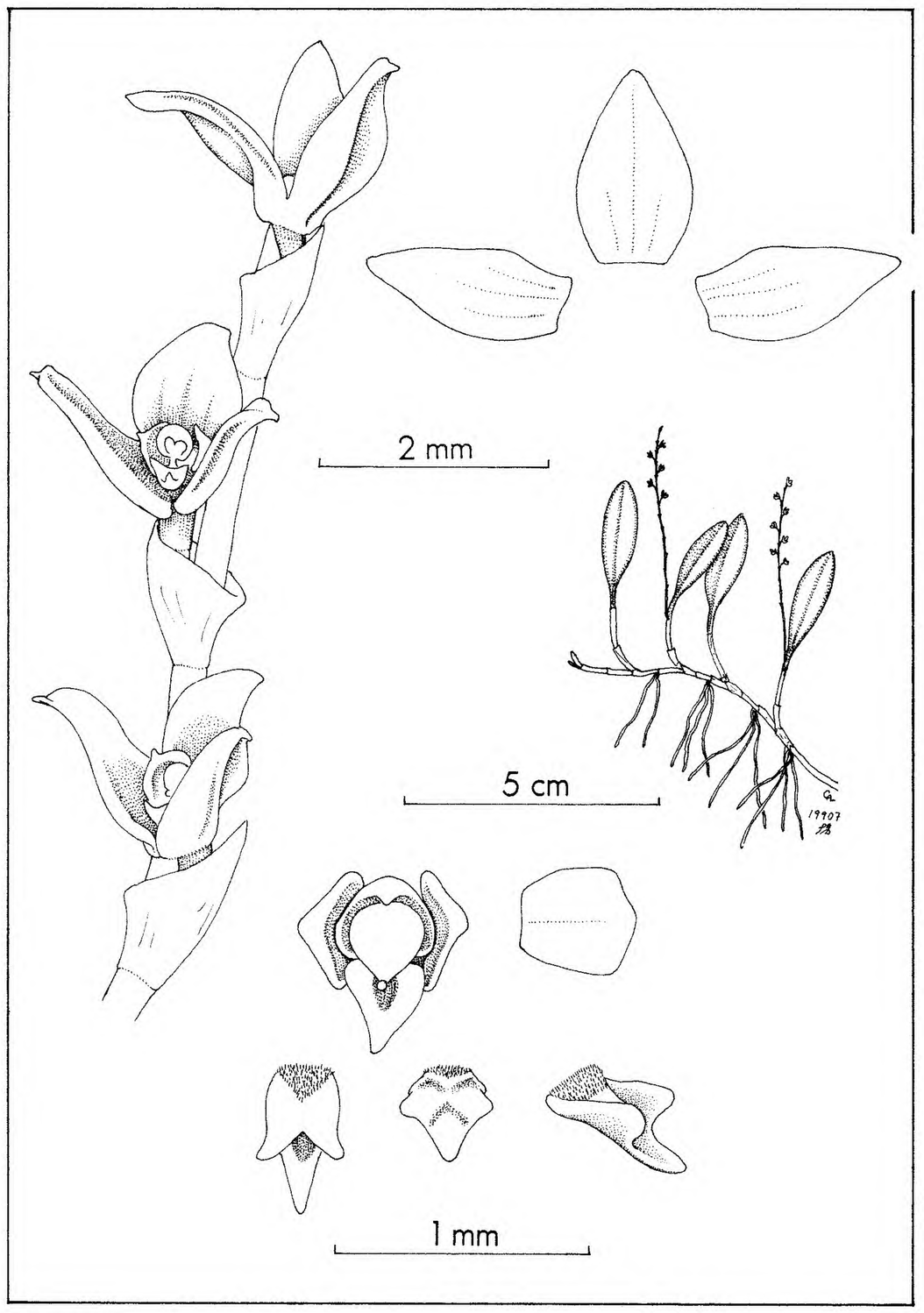


Fig. 407. Stelis repens

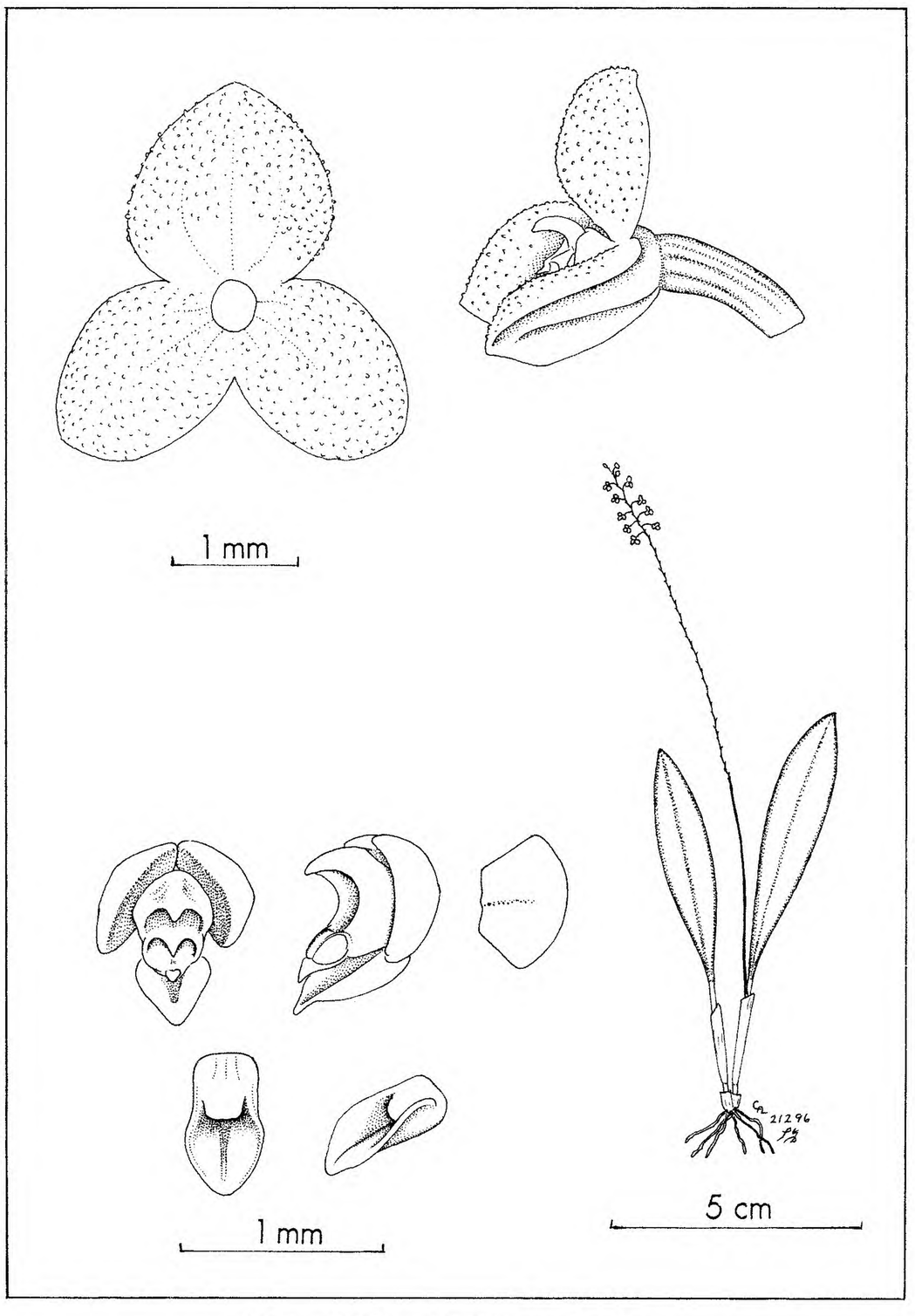


Fig. 408. Stelis rostrata

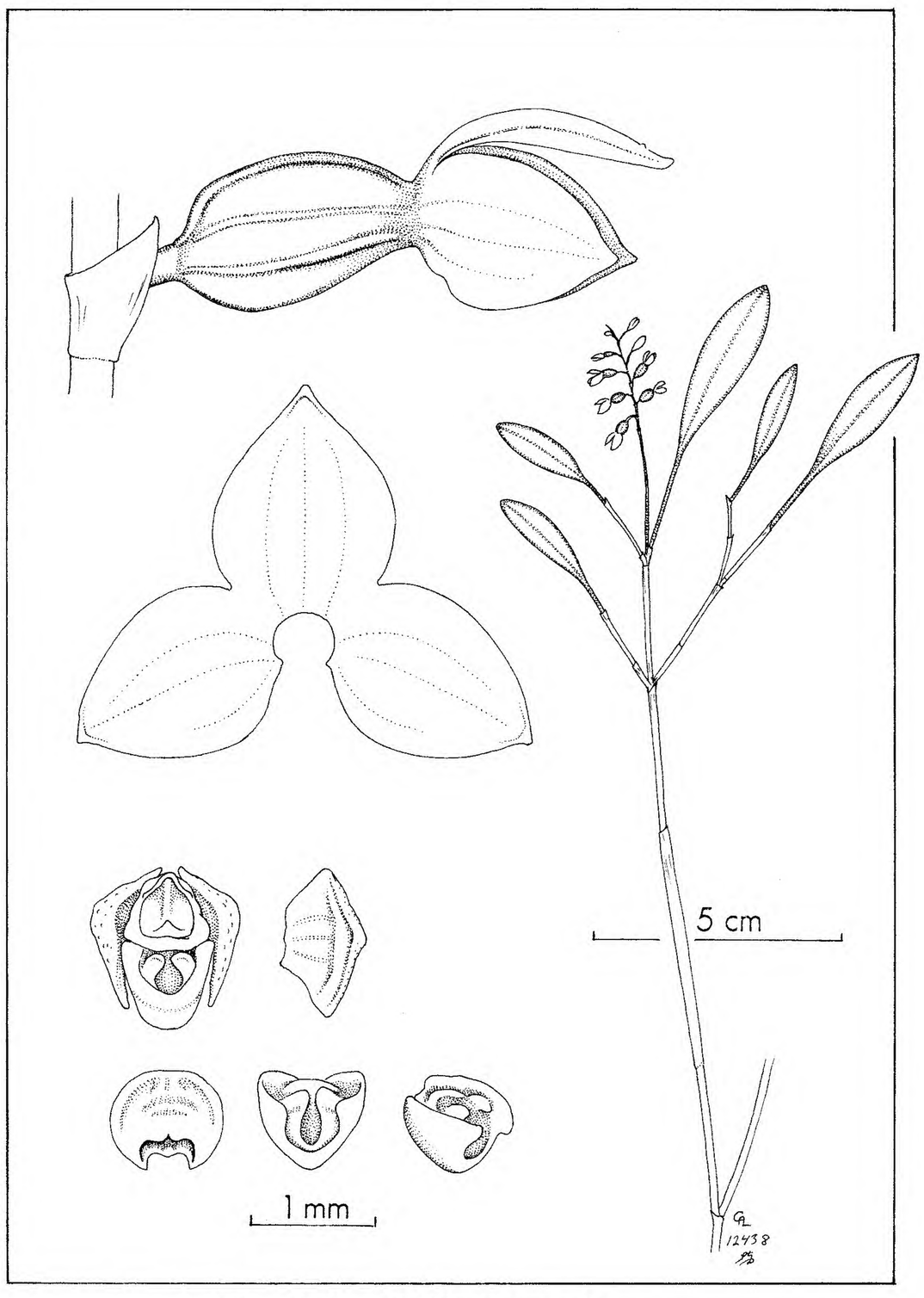


Fig. 409. Stelis satyrella

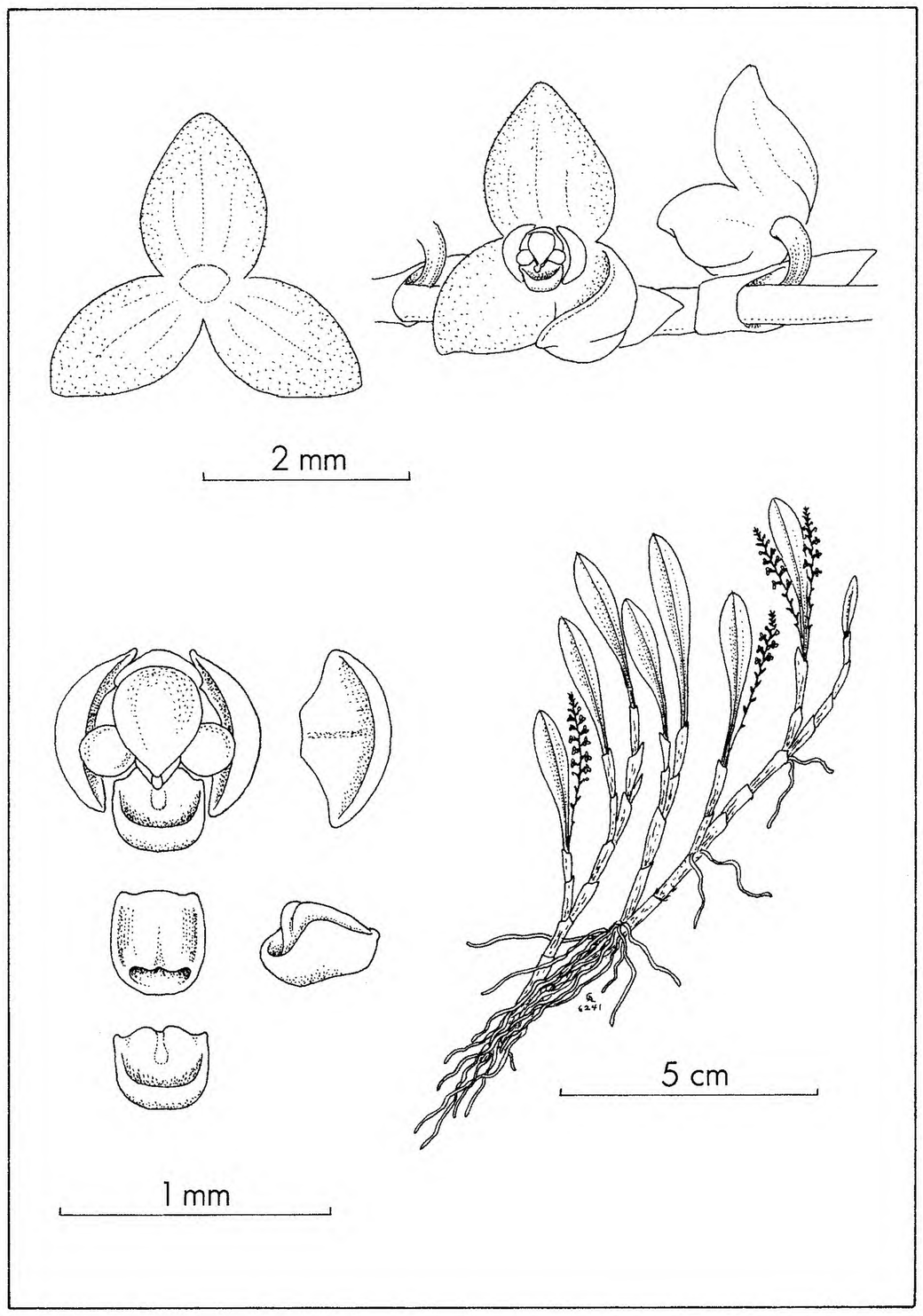


Fig. 410. Stelis scansor

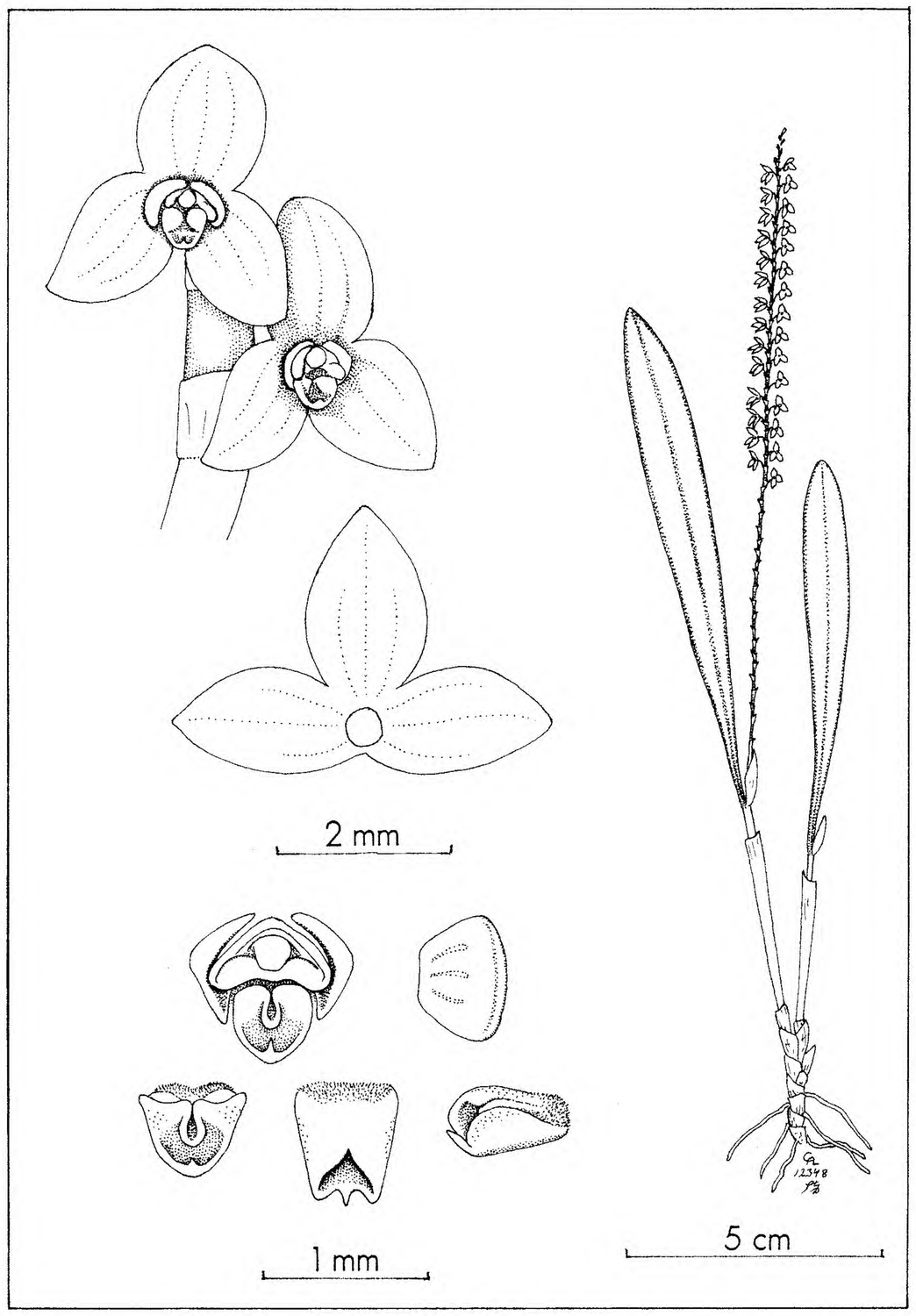


Fig. 242a. Stelis schomburgkii

Fig. 242b. Stelis schomburgkii

Fig. 411. Stelis serra

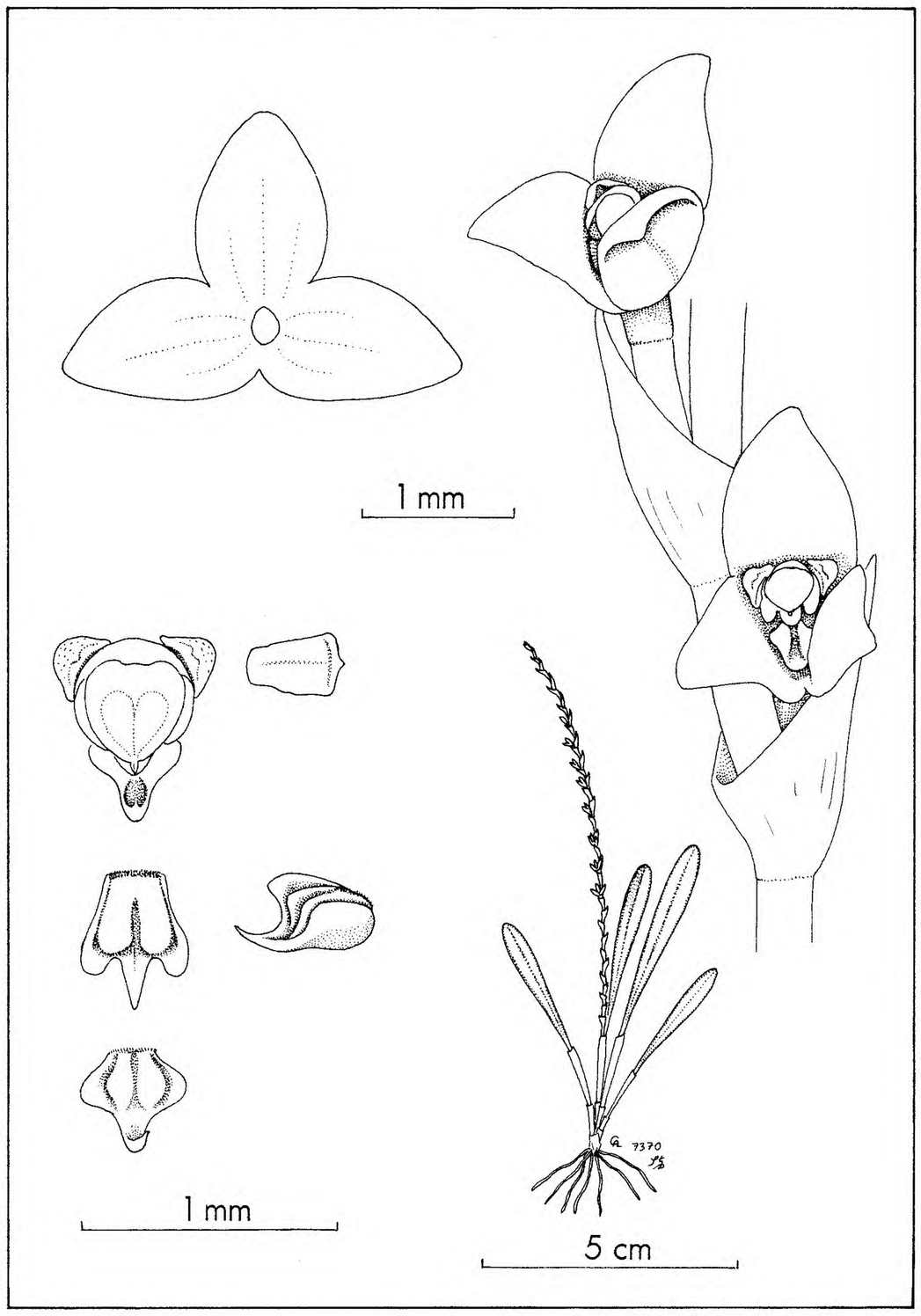


Fig. 412. Stelis spathulata

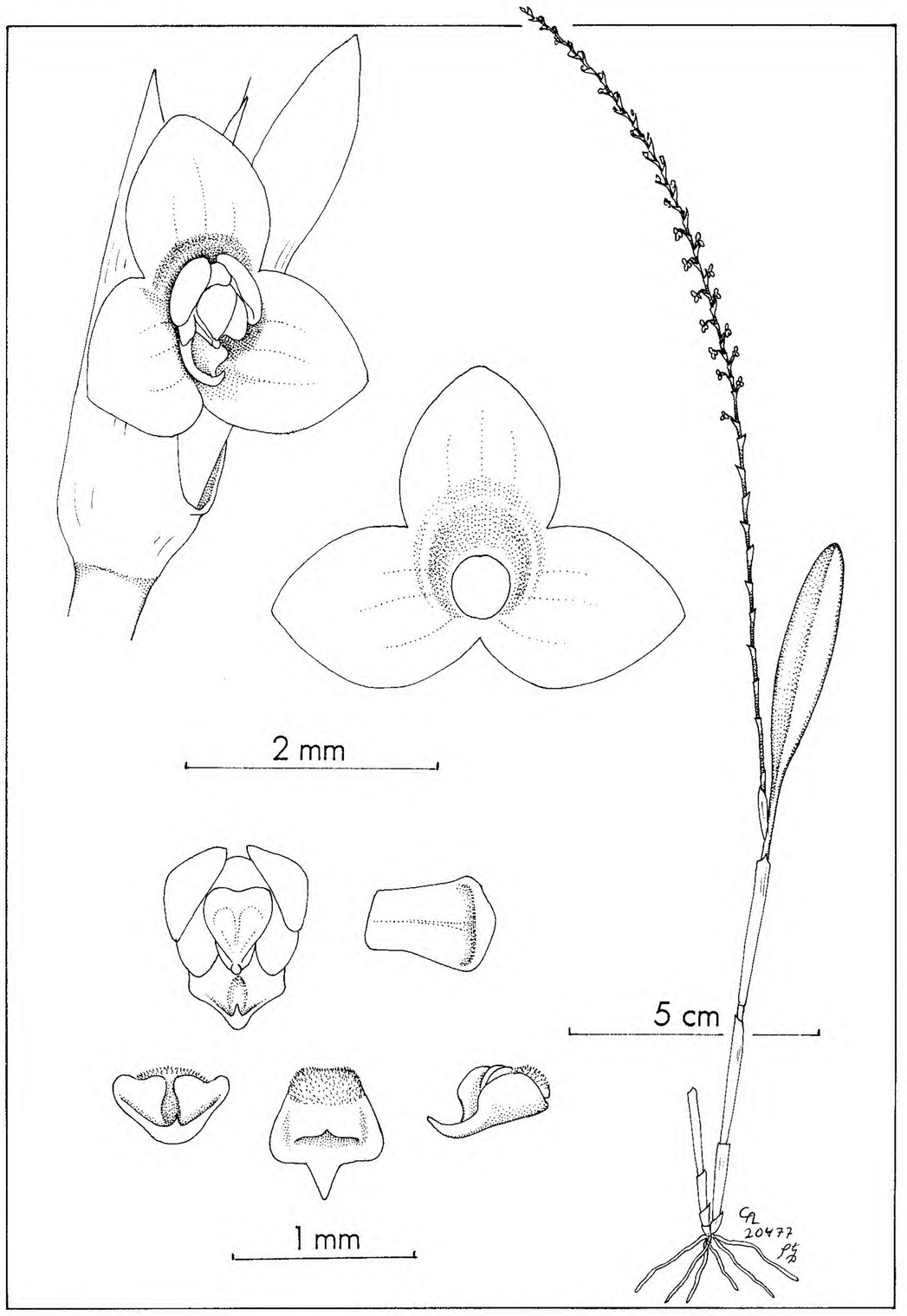


Fig. 412a. Stelis spathulata

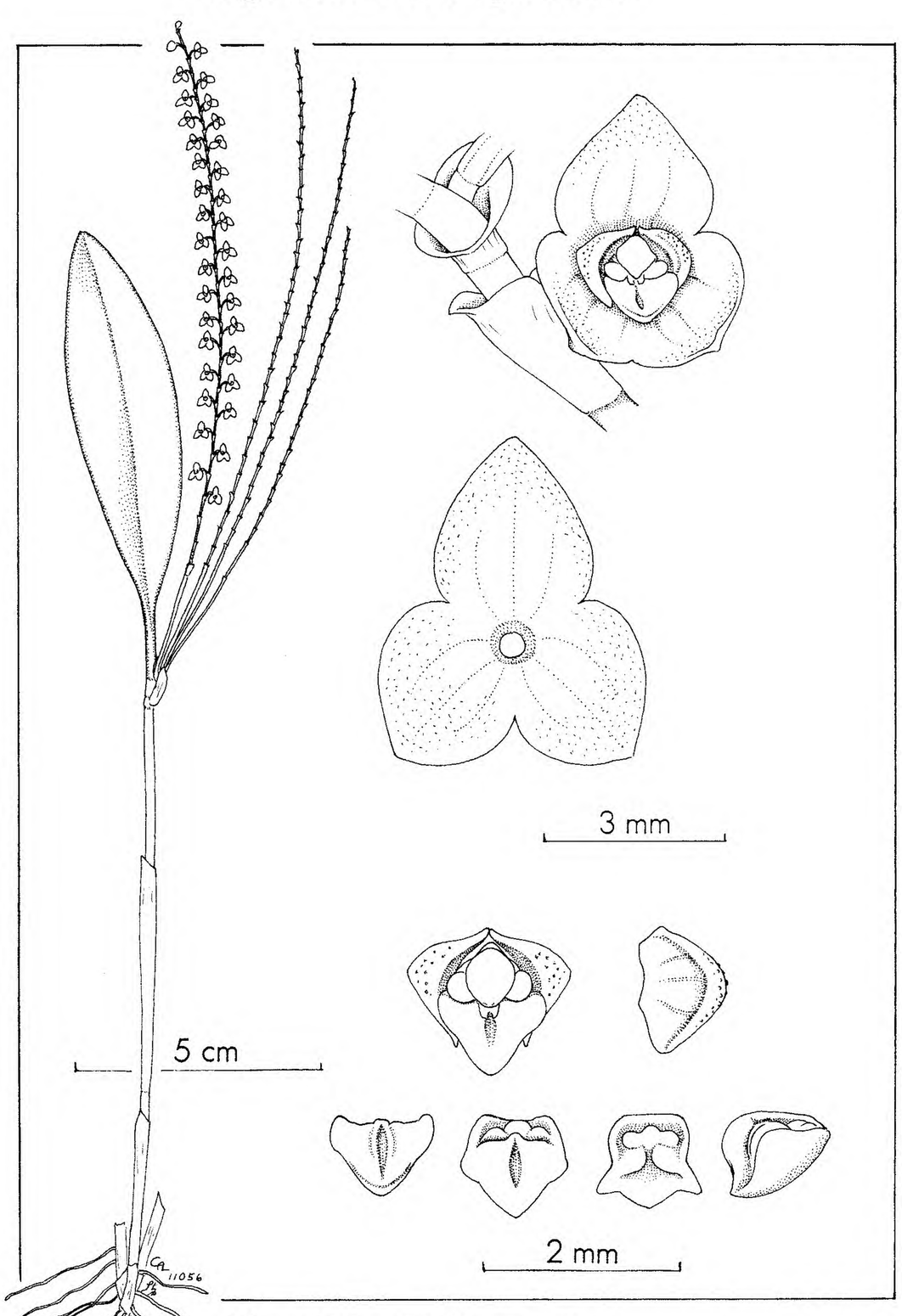


Fig. 413. Stelis striolata

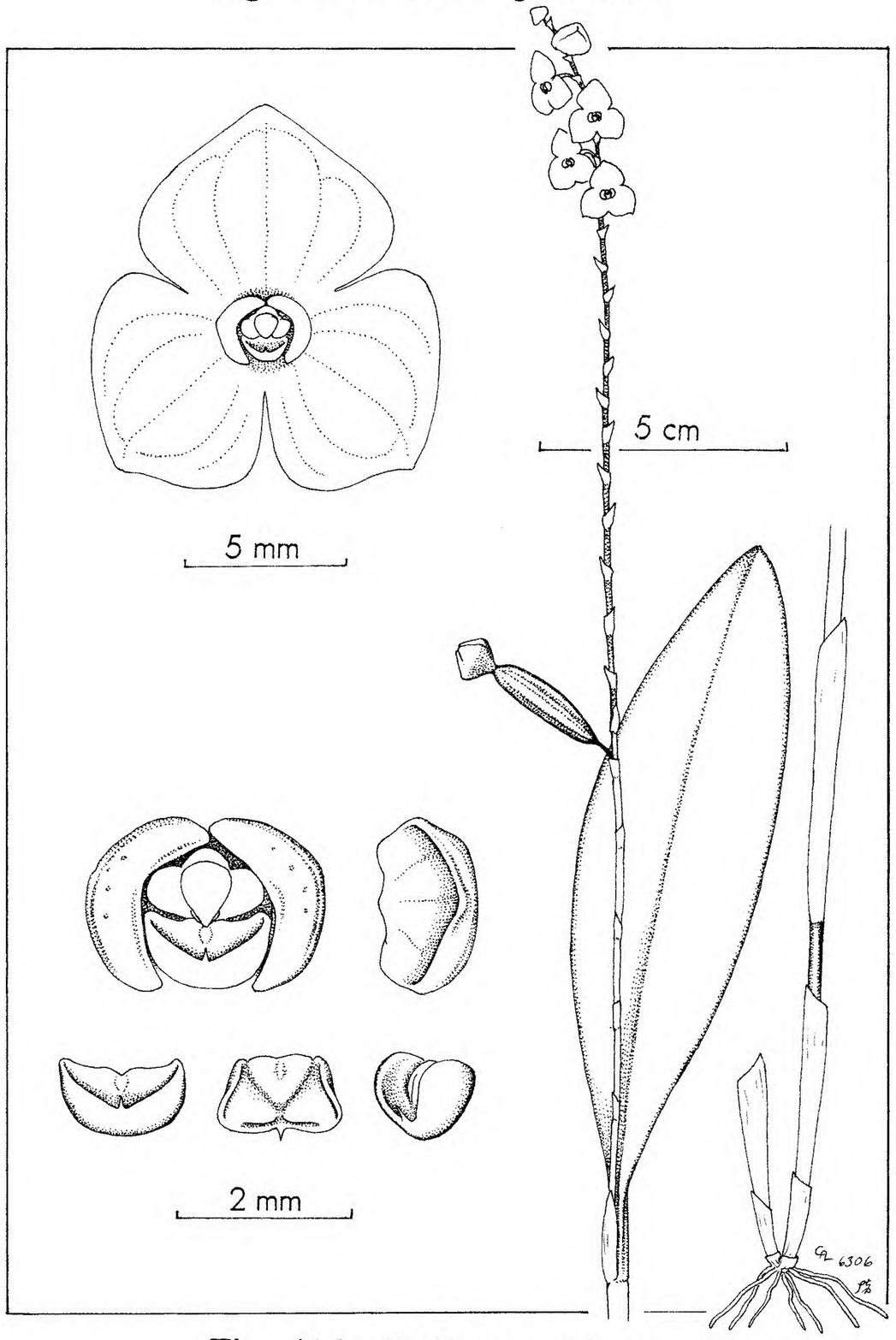


Fig. 414. Stelis superbiens

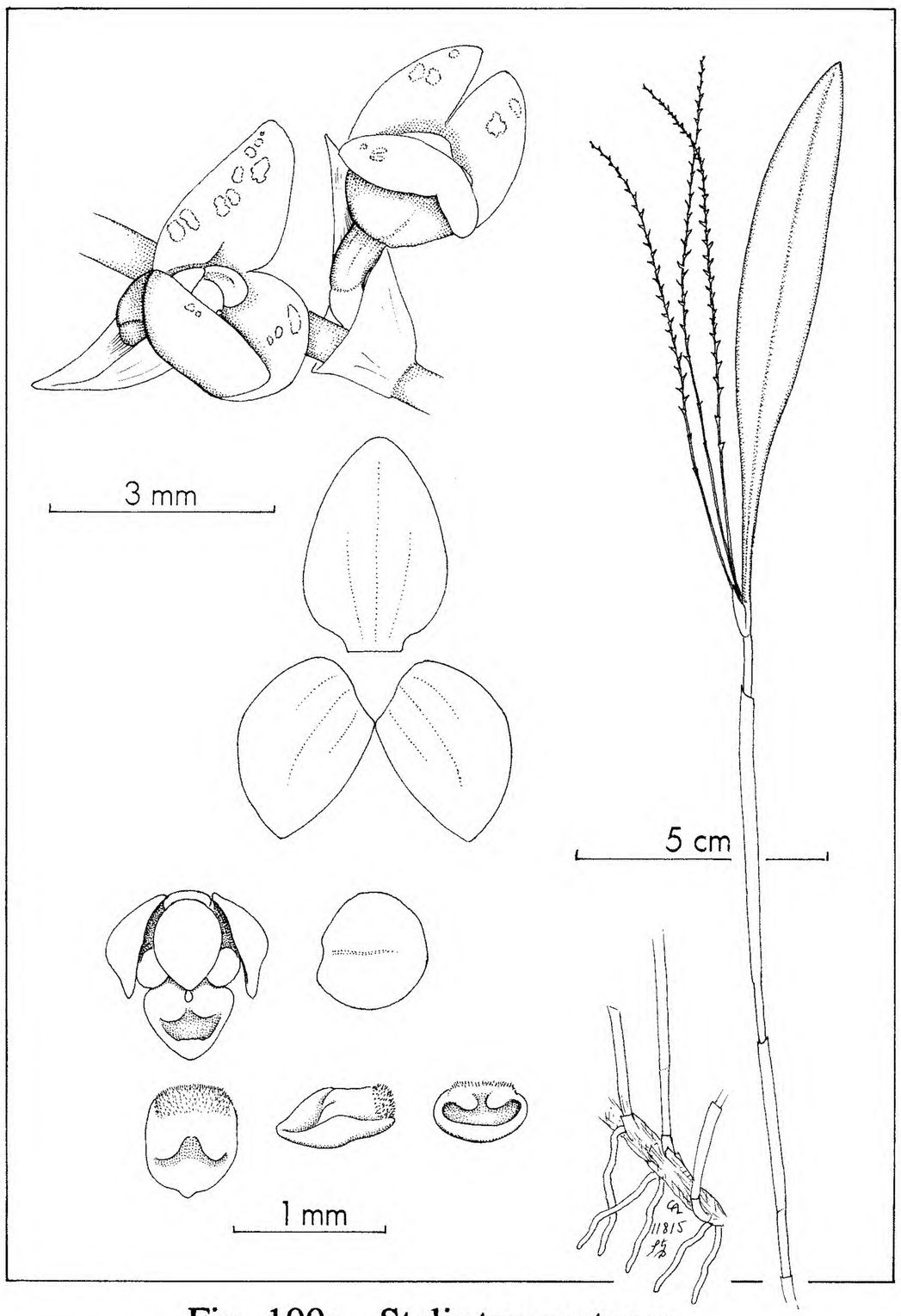


Fig. 100a. Stelis tempestuosa

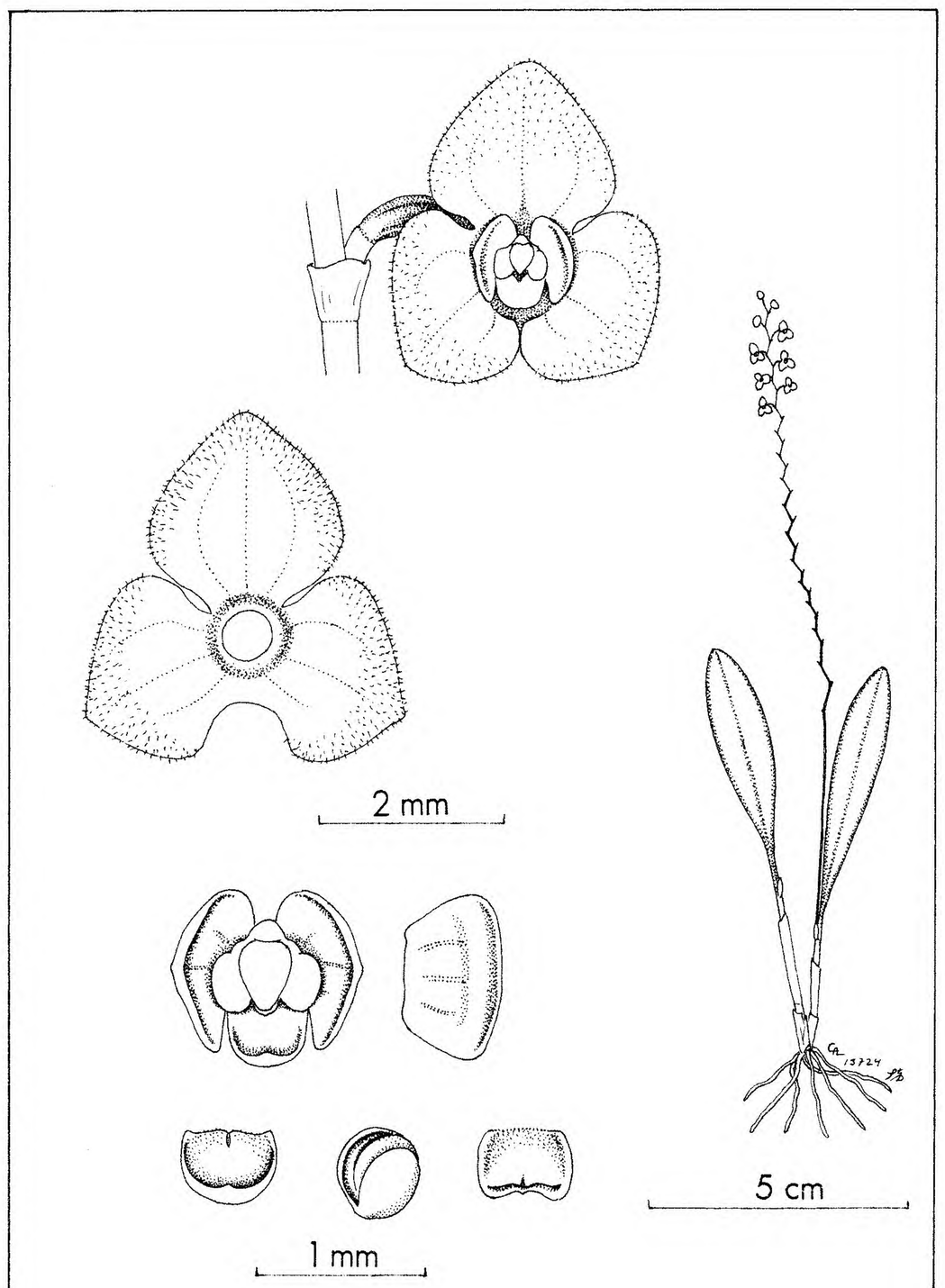


Fig. 415. Stelis tricardium

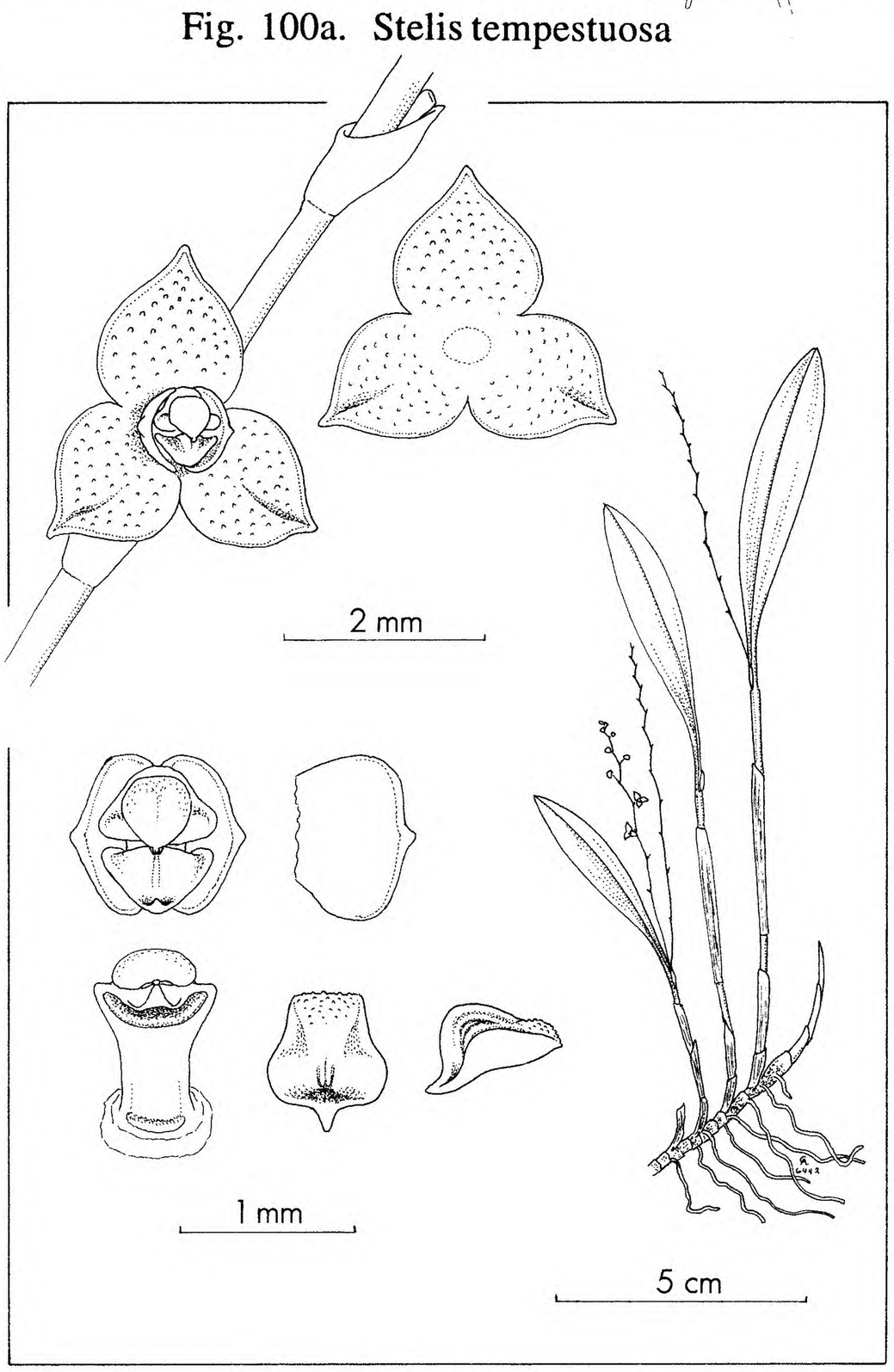


Fig. 416. Stelis trichorrachis

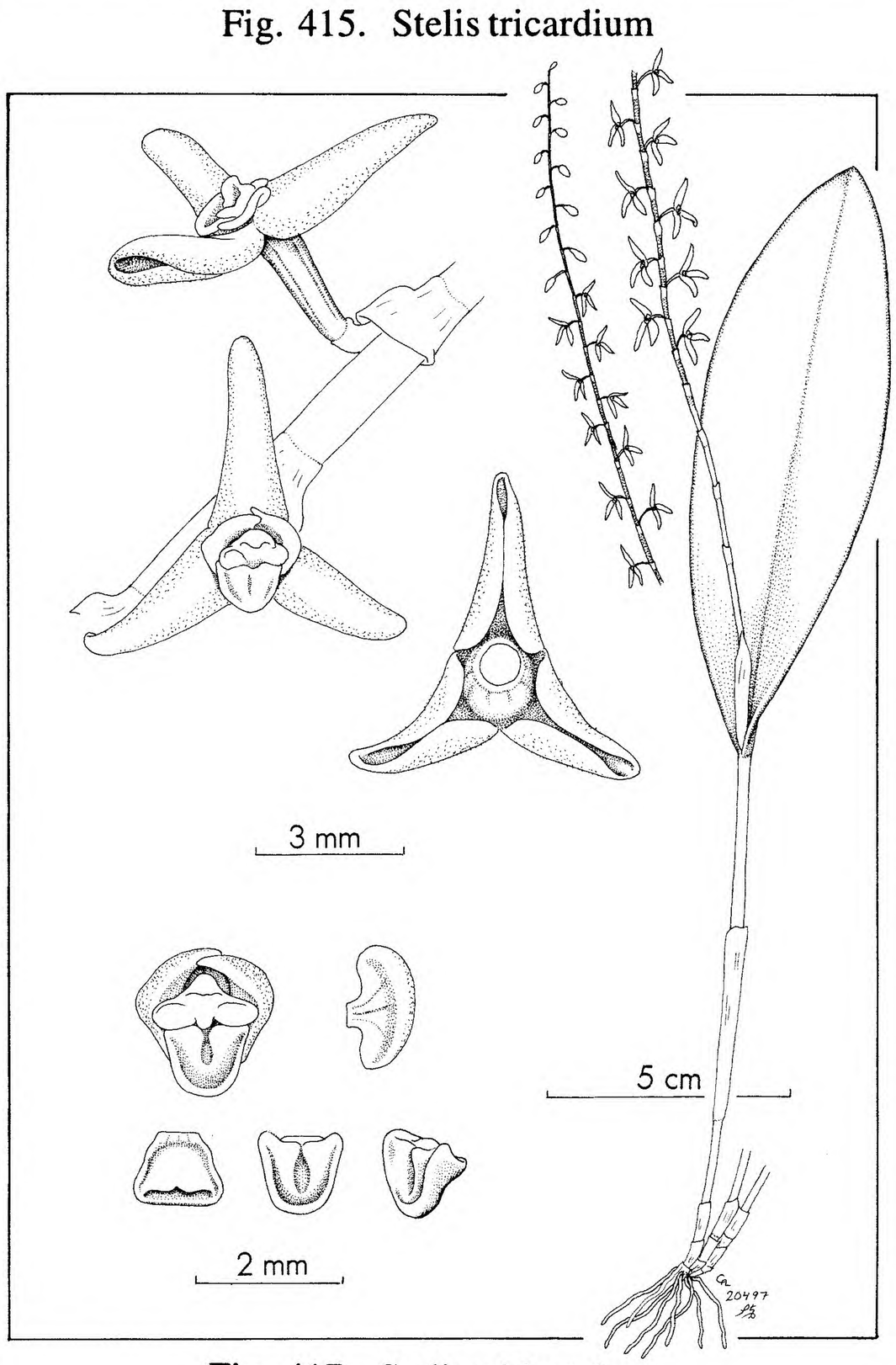


Fig. 417. Stelis tridactylon

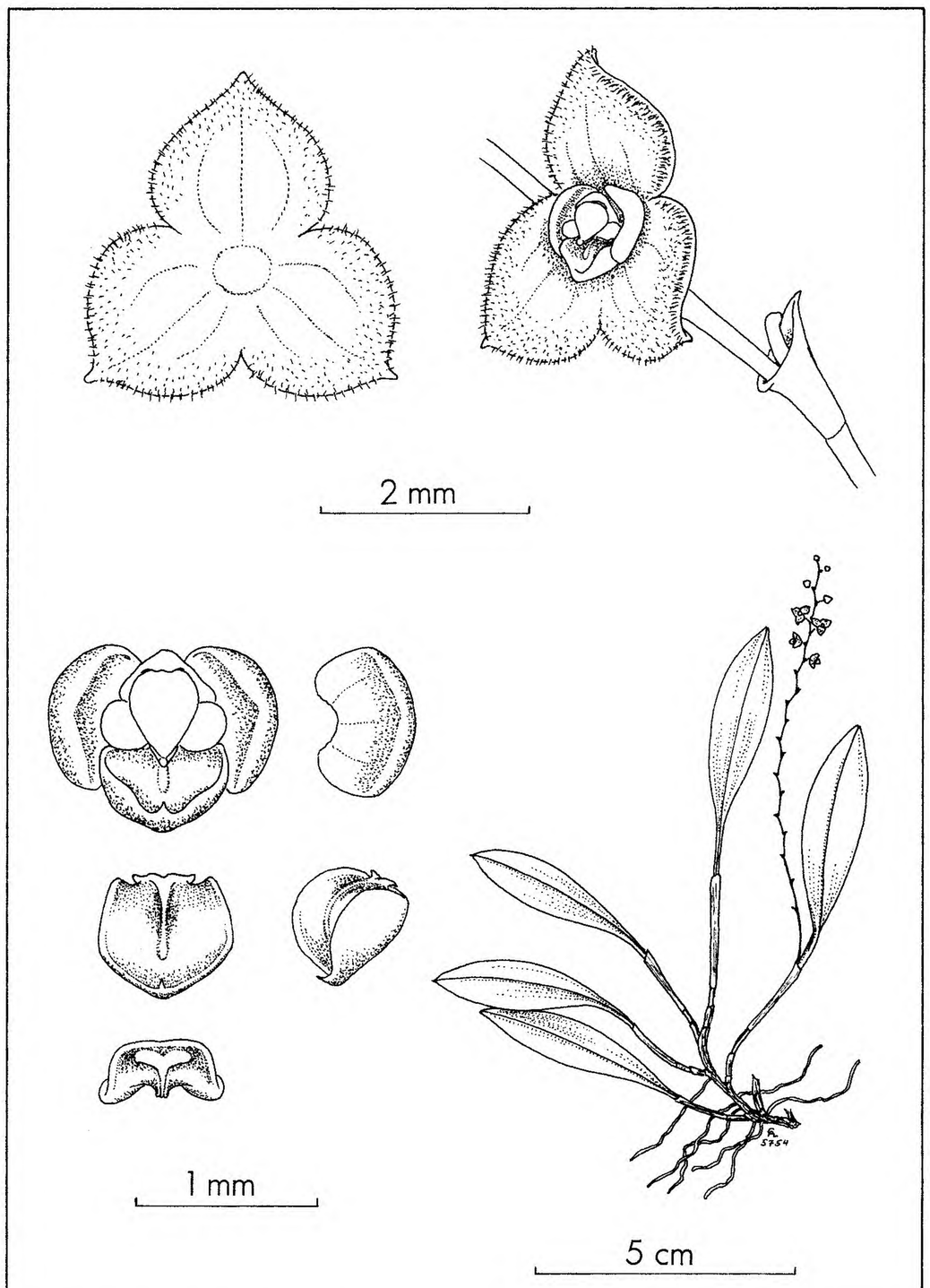


Fig. 56a. Stelis tridentata

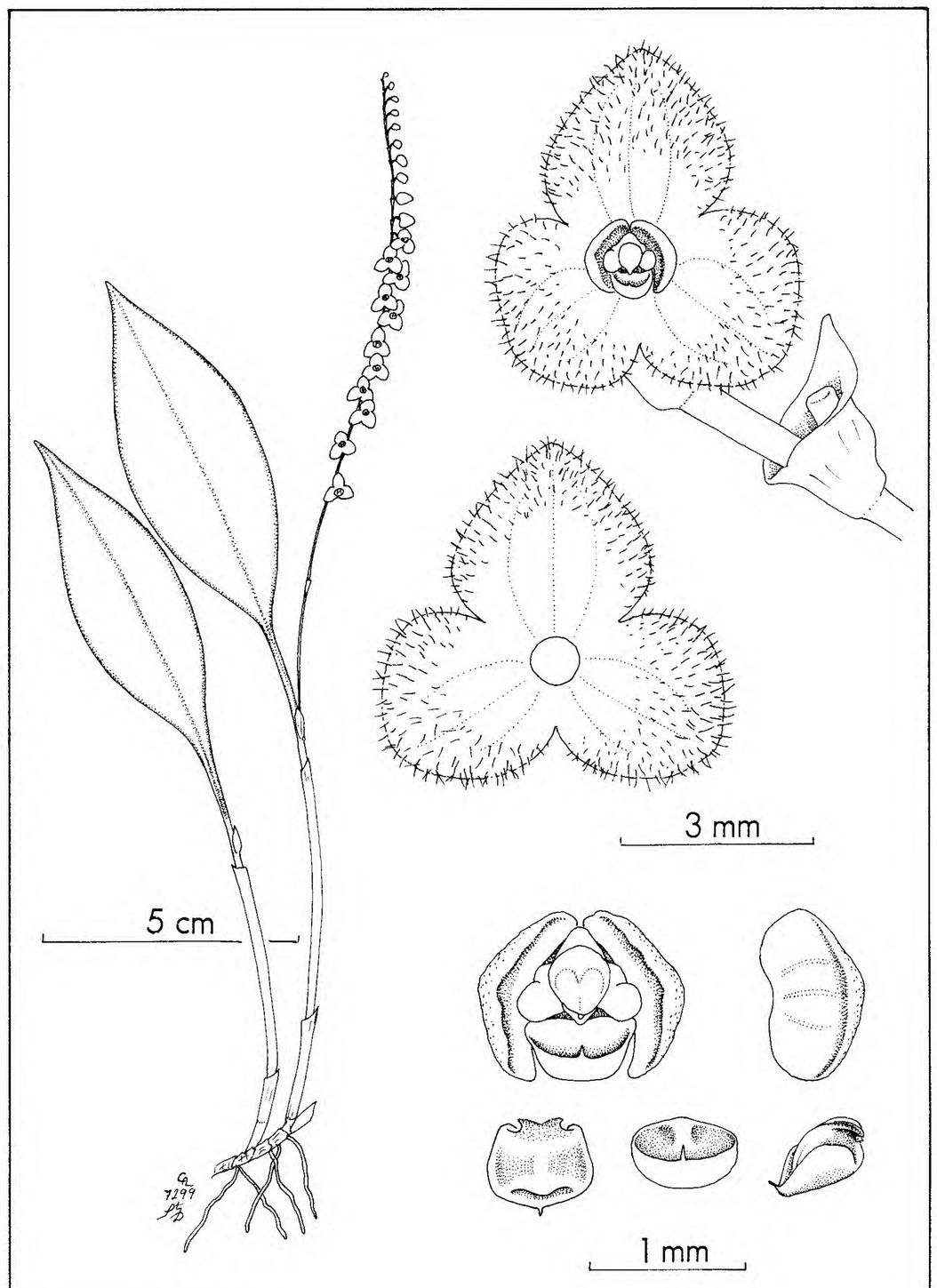


Fig. 56b. Stelis tridentata

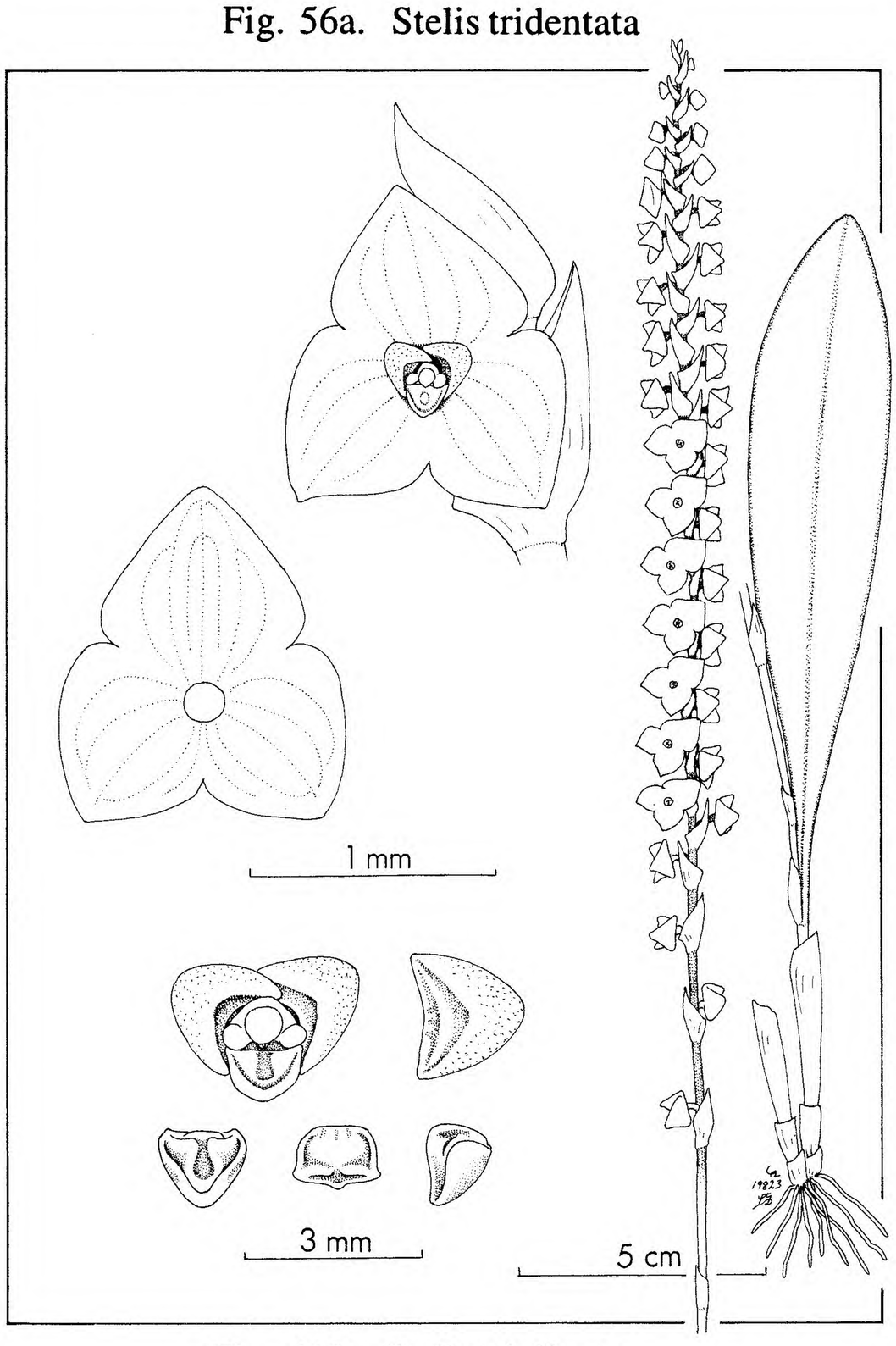


Fig. 418. Stelis triplicata

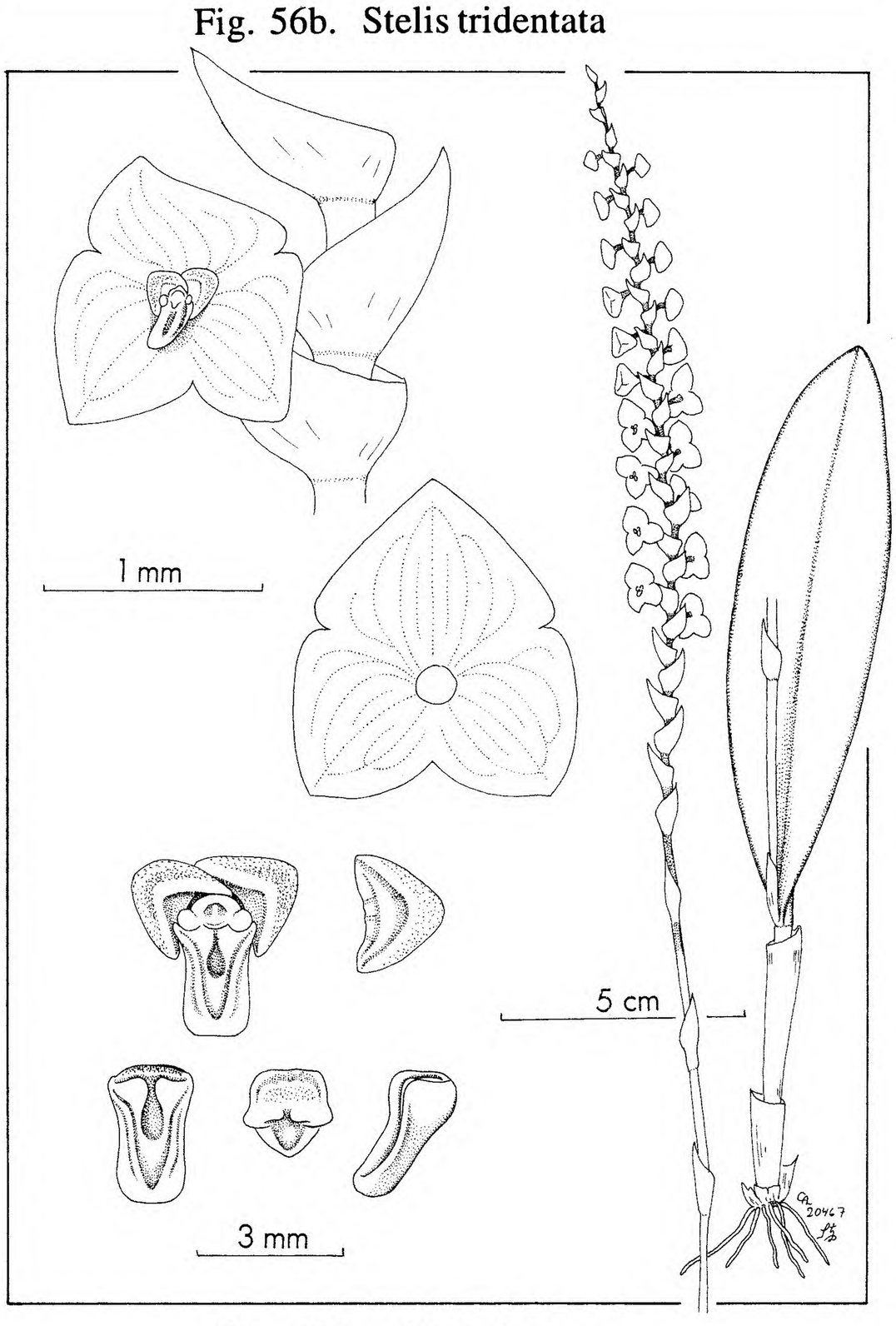


Fig. 418a. Stelis triplicata

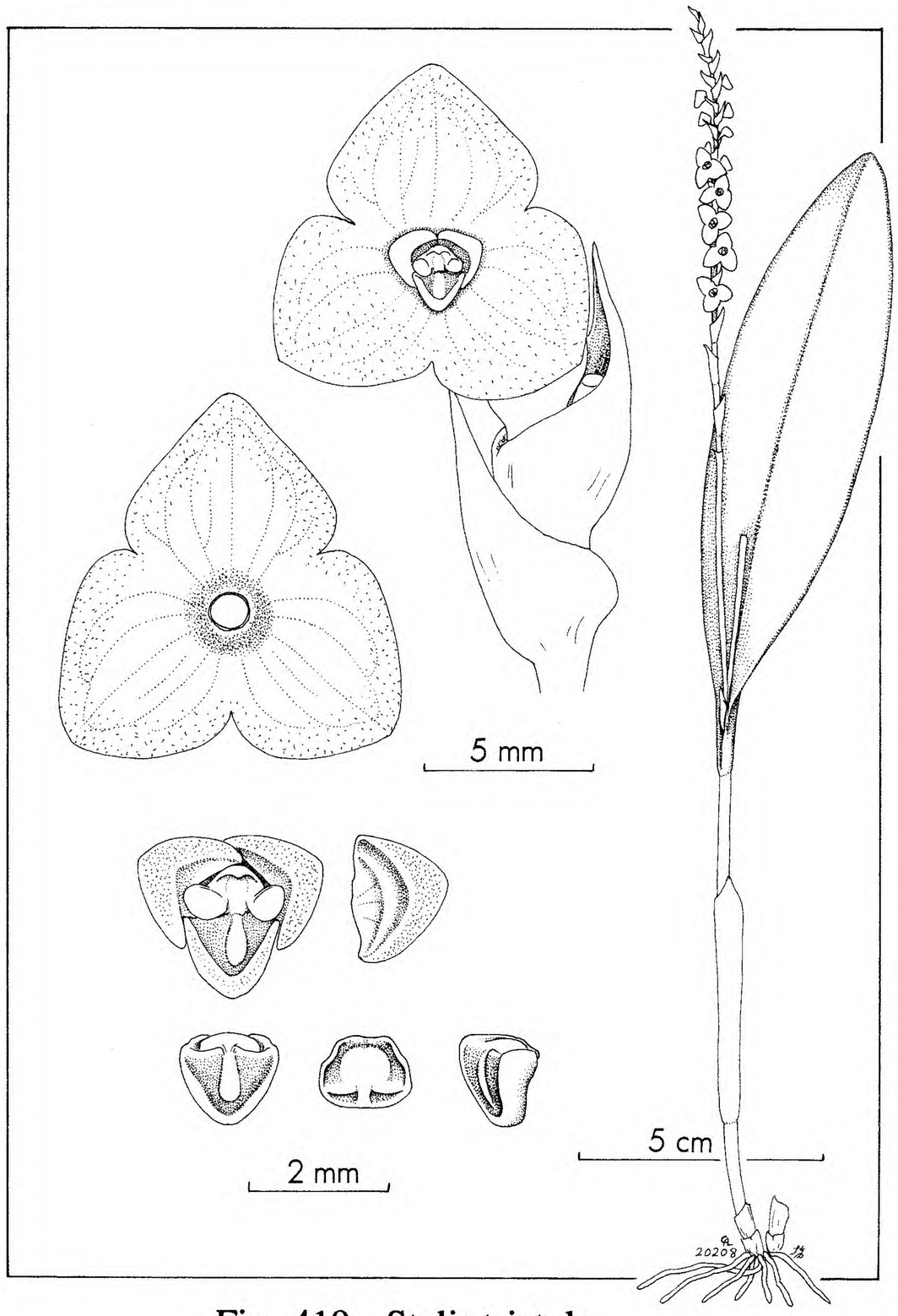


Fig. 419. Stelis tristyla

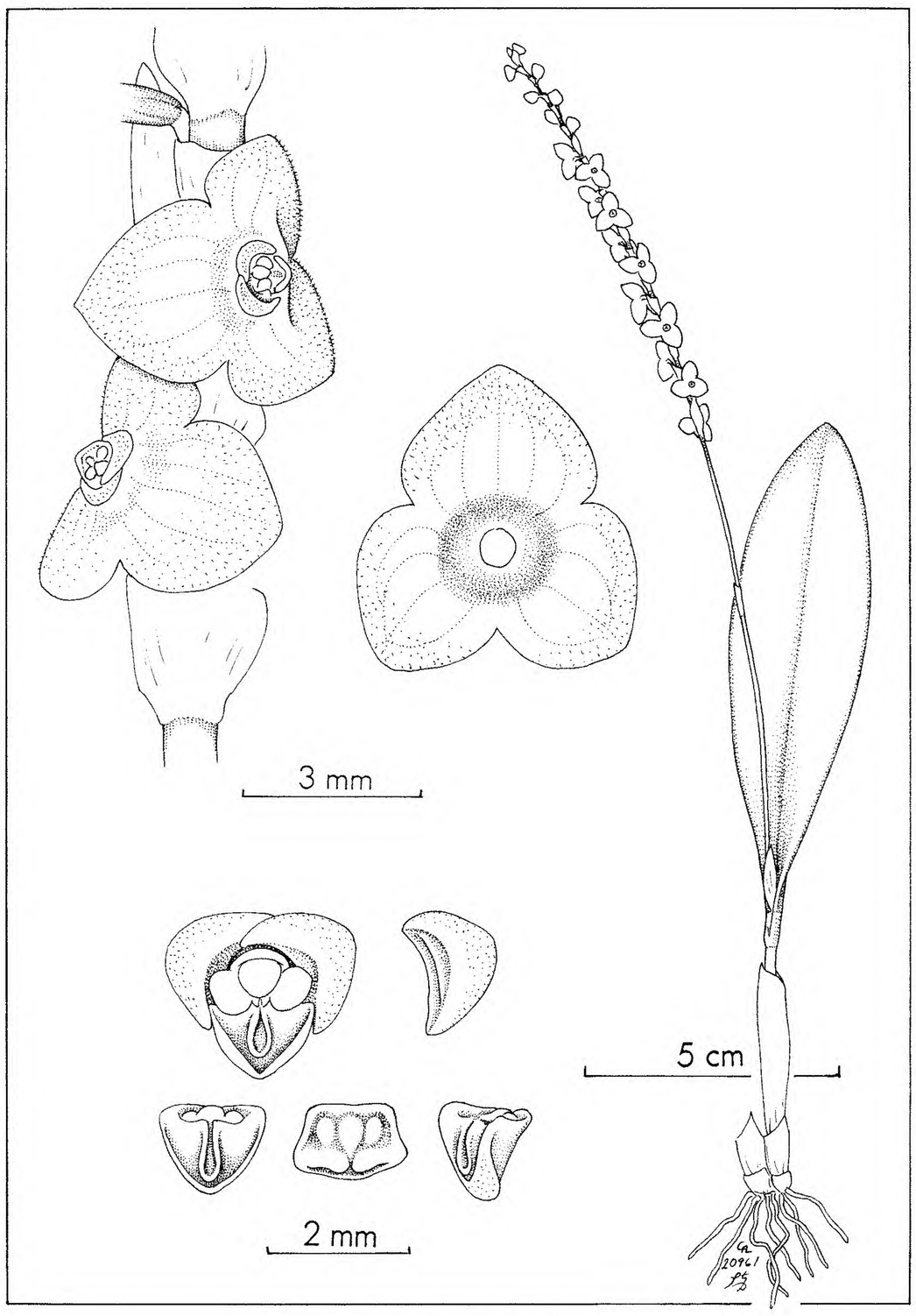


Fig. 419a. Stelis tristyla

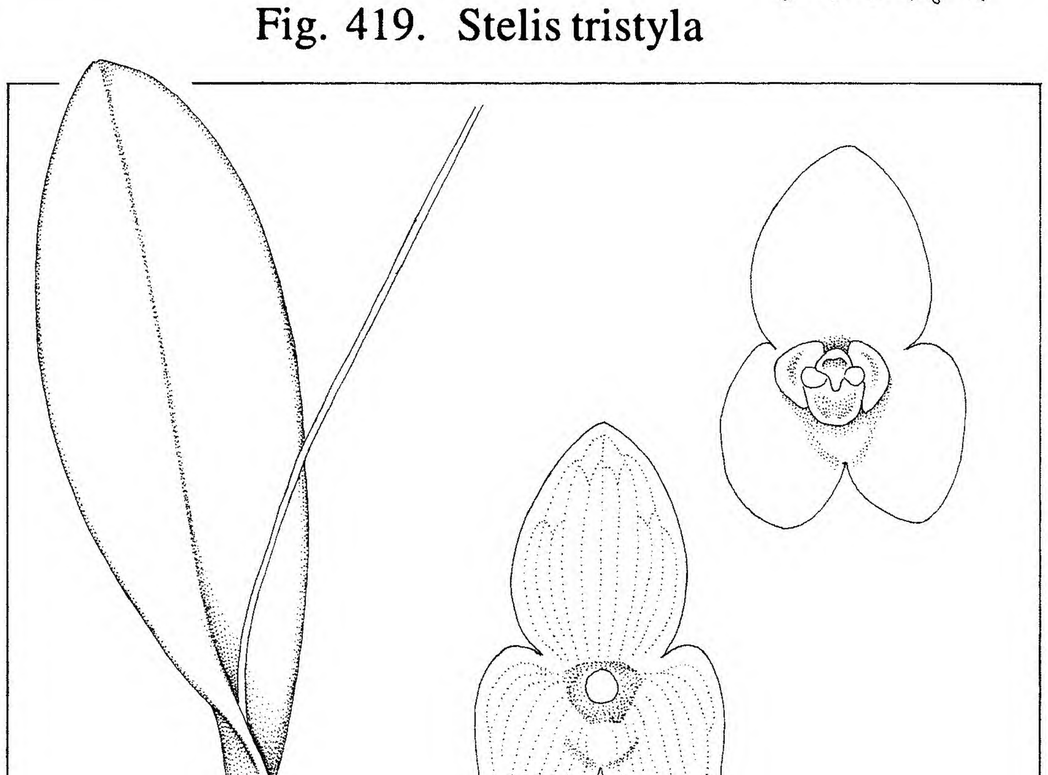


Fig. 420. Stelis undecimi

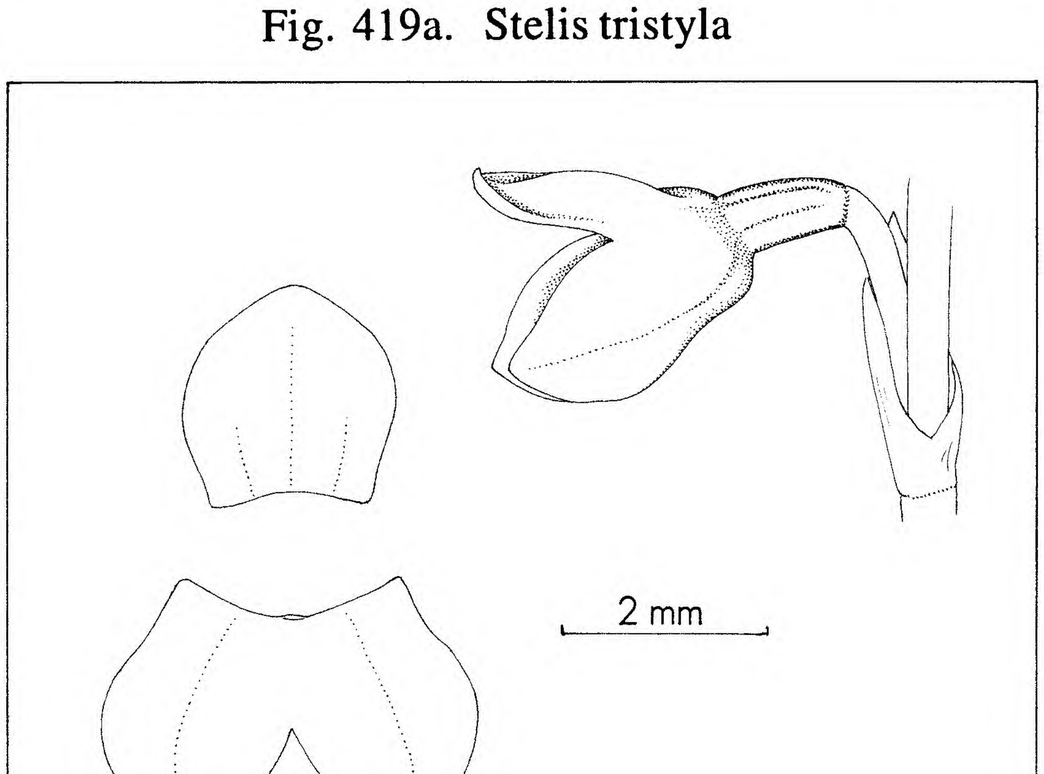


Fig. 421. Stelis villosilabia

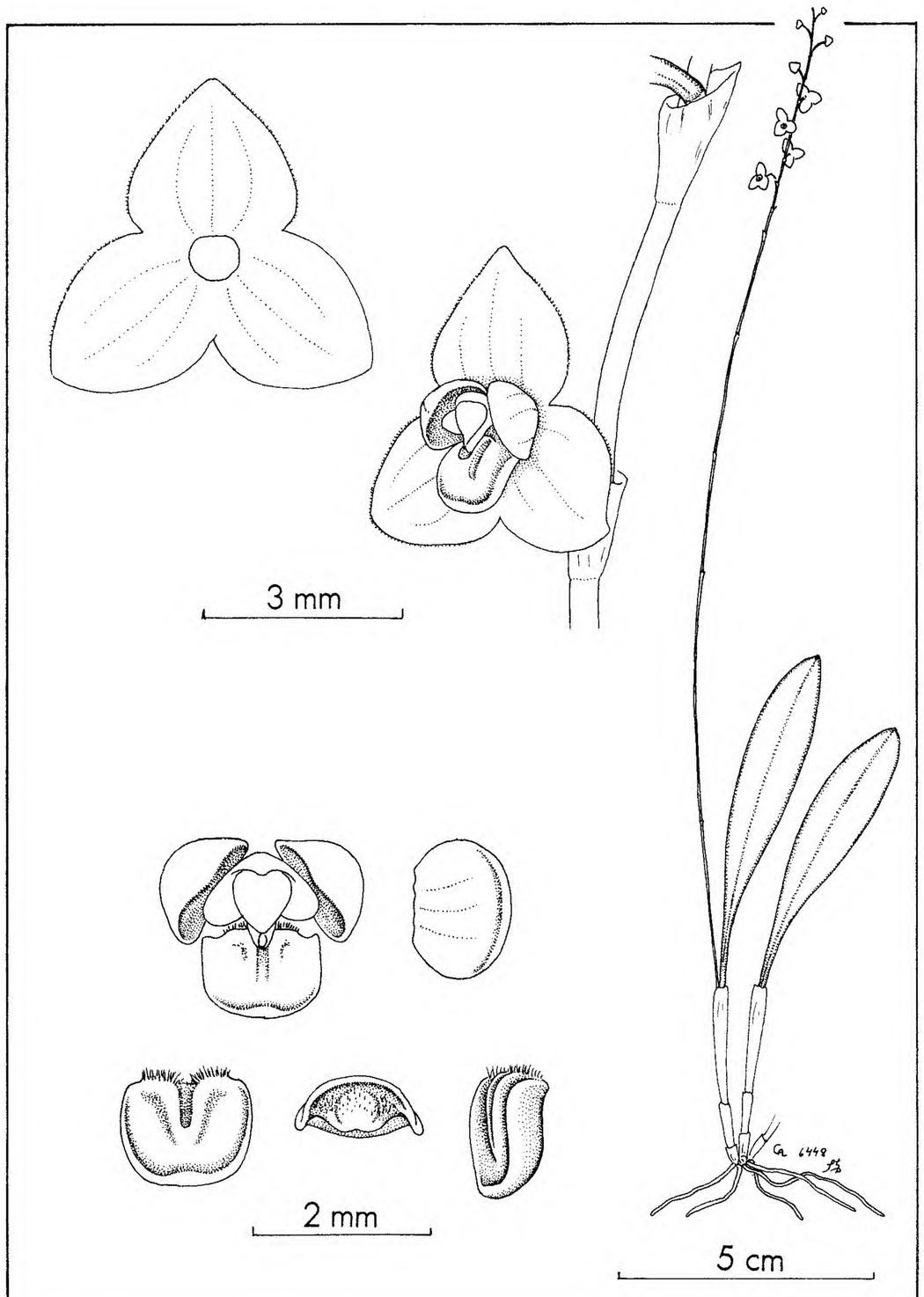


Fig. 79a. Stelis viridibrunnea

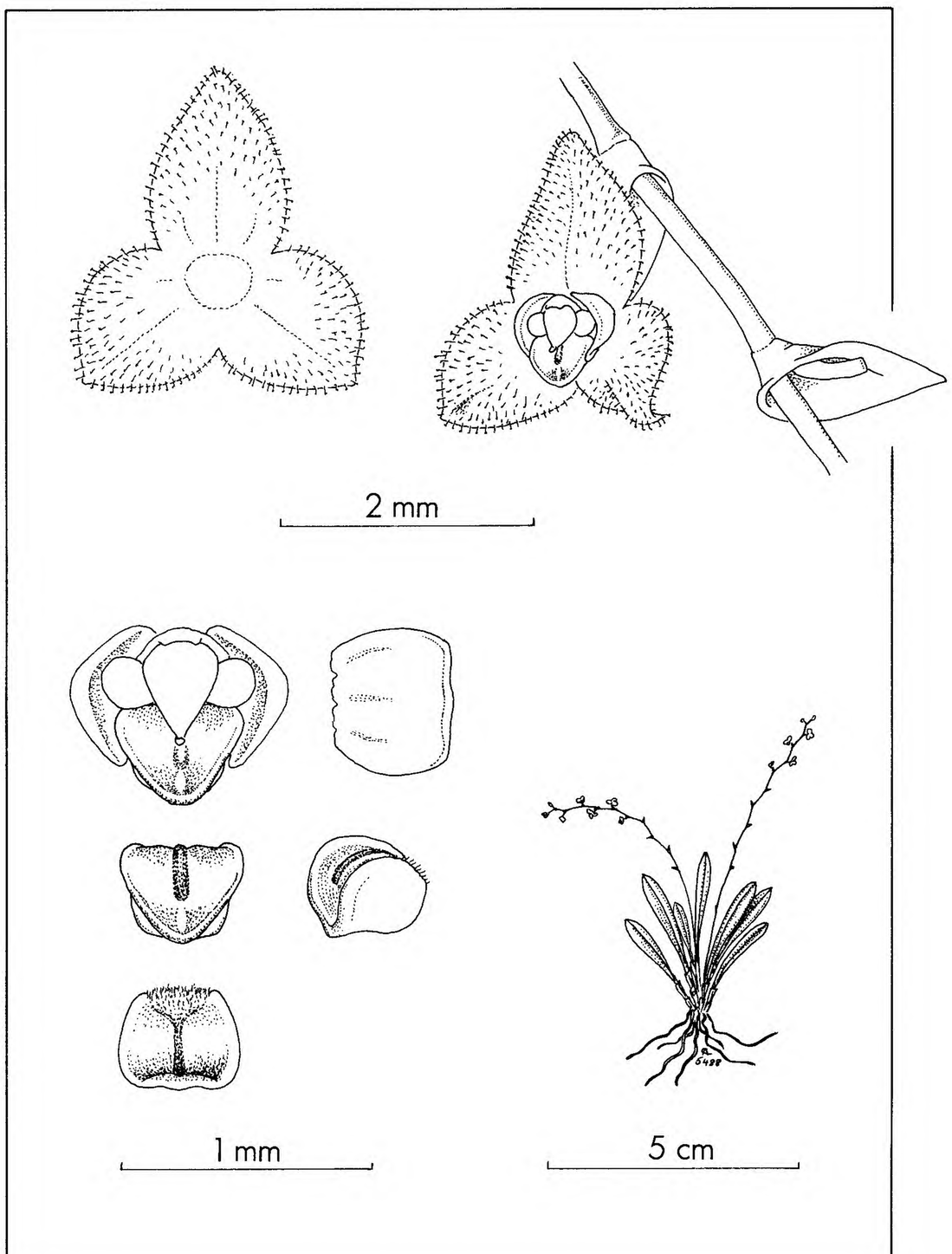


Fig. 422. Stelis viridula

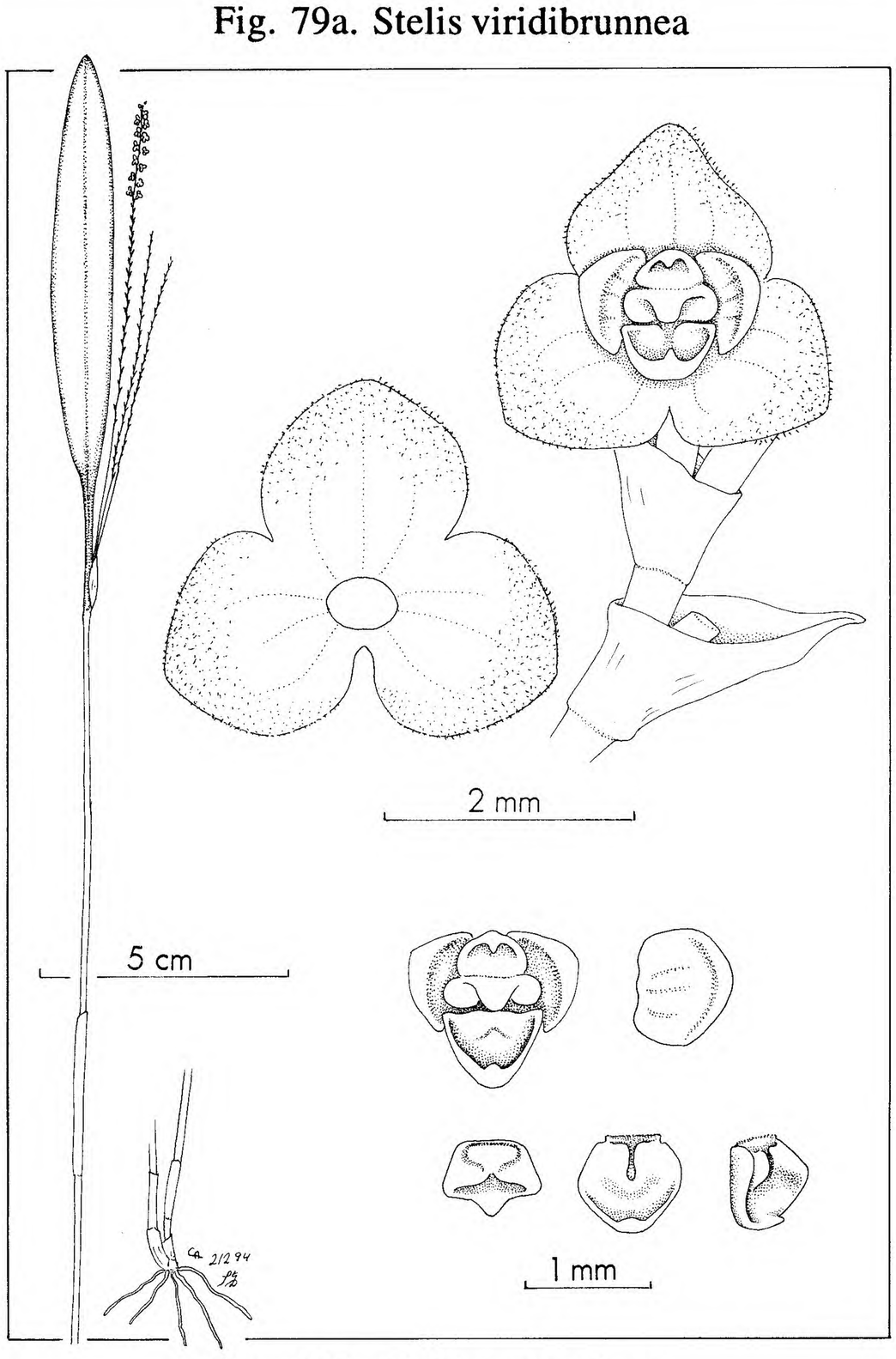
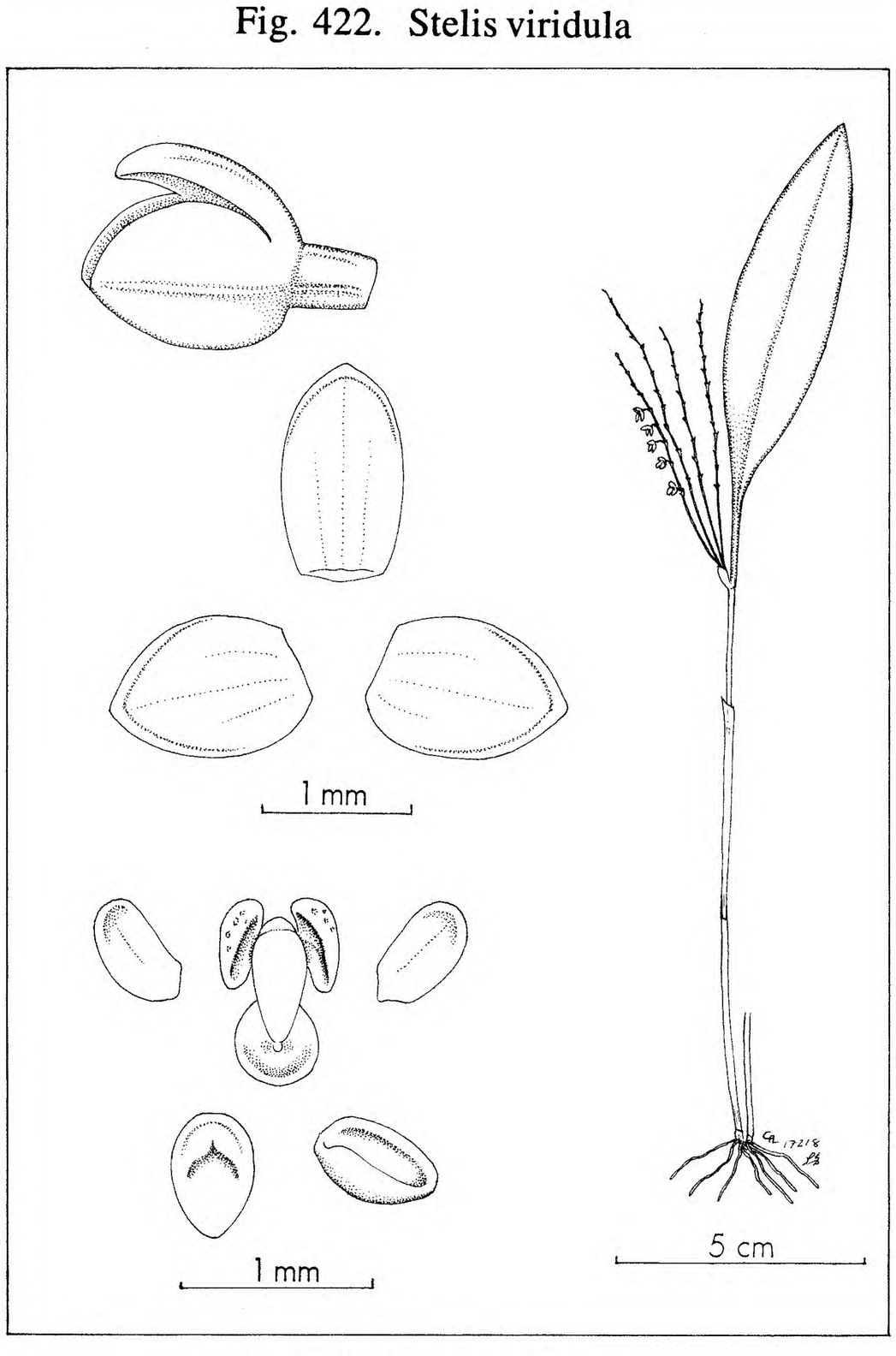


Fig. 423. Stelis xystophora



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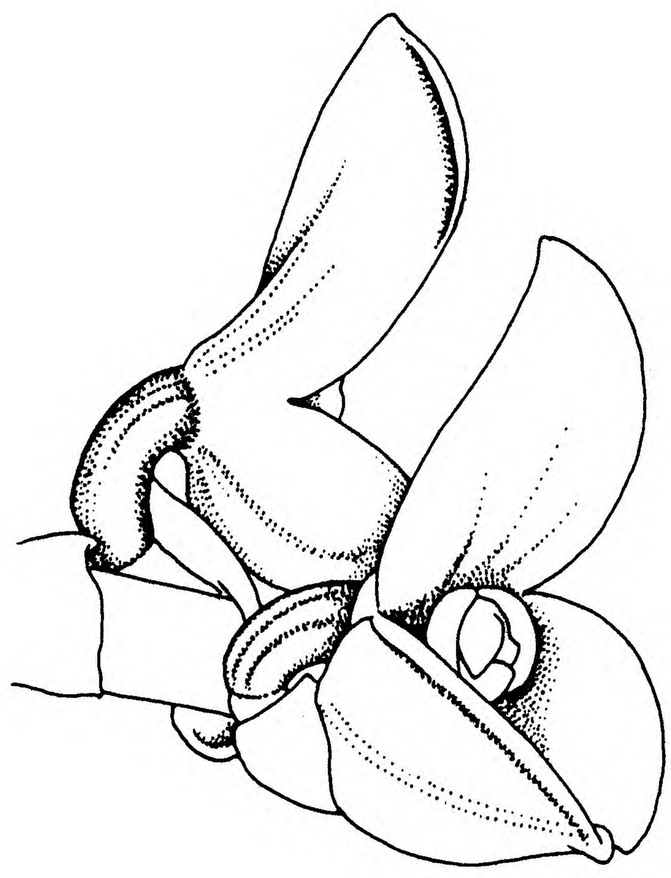

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ADDENDA TO SYSTEMATICS OF *MASDEVALLIA*

One of the reasons that subsection *Coccineae* had been delayed until Part Five of *Systematics of Masdevallia* was the hope that *Masdevallia venusta* would reappear. It was described by Schlechter in 1921 from a collection by Weberbauer from the Andean slopes east of Huancabamba in northern Peru. This specimen was lost in the destruction of the Berlin-Dahlem herbarium in 1944. No duplicate material is known.

In botanical literature the epithet *venusta* first appeared merely in a list of plants made from several sales catalogues. Schlechter used the epithet to describe formally a beautiful, terrestrial species from Peru as *Masdevallia venusta*. In the *Orchids of Peru*, Schweinfurth included *M. coccinea* Linden ex Lindl., listing *M. venusta* in the synonymy.

Masdevallia venusta Schltr., Repert. Spec. Nov. Regni Veg. Beih. 9: 62, 1921.

Ety.: From the Latin *venustus*, "beautiful," for the beauty of the flowers.

Plant medium in size to large, terrestrial, caespitose. Ramicauls erect, stout, 3 cm long, enclosed by 1-2 tubular sheaths. **Leaf** erect, thick, linear-elliptical, obtuse, 12 cm long, 2 cm wide, 0.2-0.3 cm thick, gradually narrowed below into a subpetiolate base. **Inflorescence**: a solitary flower borne by a stout, more or less horizontal peduncle, 30 cm long, floral bract closely clasping, 2 cm long; pedicel stout, 6 cm long; ovary cylindrical, thick, 8 mm long; **sepals** glabrous, bright red-orange, the dorsal sepal narrowly obovate, 60-65 mm long, including the tail ca. 30 mm long, 9 mm wide, 3-veined, connate to the lateral sepals for 18 mm into a curved sepaline tube, the apex acute, acuminate into the tail, the lateral sepals broadly falcate, ca. 45 mm long and connate 20 mm beyond the tube into an expanded lamina 30 mm broad, 6-veined, the apices acuminate into indistinct, short tails less than 1 cm long; **petals** white, oblong, 10 mm long with the basal process, 3 mm wide, the apex obtusely bilobulate, the lower margin with a narrow, longitudinal callus terminating in a retrorse, acute, narrowly triangular process; **lip** elliptical-oblong, 8 mm long, 3.5 mm wide, truncate at the tip with a marginal lobule, the disc with a pair of low calli on the middle third, the base truncate, hinged beneath to the column-foot; **column** terete, 7 mm long, the foot thick, 3 mm long, with an incurved extension.

PERU: **Cajamarca**: east side of the cordillera east of Huancabamba, alt. 2400-2500 m, Apr. 1912, *A. Weberbauer 6111* (Holotype destroyed at B); without collection data, obtained in Jan. 2008 by Lynn O'Shaughnessy, flowered in cultivation at Howell, MI, May 2008, *C. Luer 21305* (Neotype here designated: MO).
Ancash: Conchuca, Pallasca, alt. 3000-3400 m, collected and cultivated in Lima by *Manolo Arias s.n.* (USM).

This species with scarlet ("coccineus" *fide* Weberbauer) flowers apparently had not been recognized since the original collection by Weberbauer nearly a century ago in northern Peru. Widely distributed in northern and central Peru, the typically purple *Masdevallia amabilis* Rchb.f. & Warsz. is frequent and variable in size and configuration of the sepals. Four presumed variations were illustrated in Part Five of the *Systematics of Masdevallia* where the color was noted to vary from yellow-orange to purple or white. Recently, plants with red-orange flowers have appeared in the trade as *Masdevallia venusta*, and although details of the flowers do not exactly match those of Schlechter's original, there is no doubt about the identification. Schlechter made his description from a rehydrated flower that rarely retains the details of a living flower, or a fresh flower preserved in the proper liquid. In retrospect, it is now believed that *M. amabilis*, *M. venusta*, and intermediate variations between both species occur sympatrically in northern Peru. *Masdevallia venusta* is distinguished from *M. amabilis* by larger, red-orange flowers with acuminate lateral sepals, instead of smaller, typically purple flowers with more or less abruptly caudate lateral sepals.

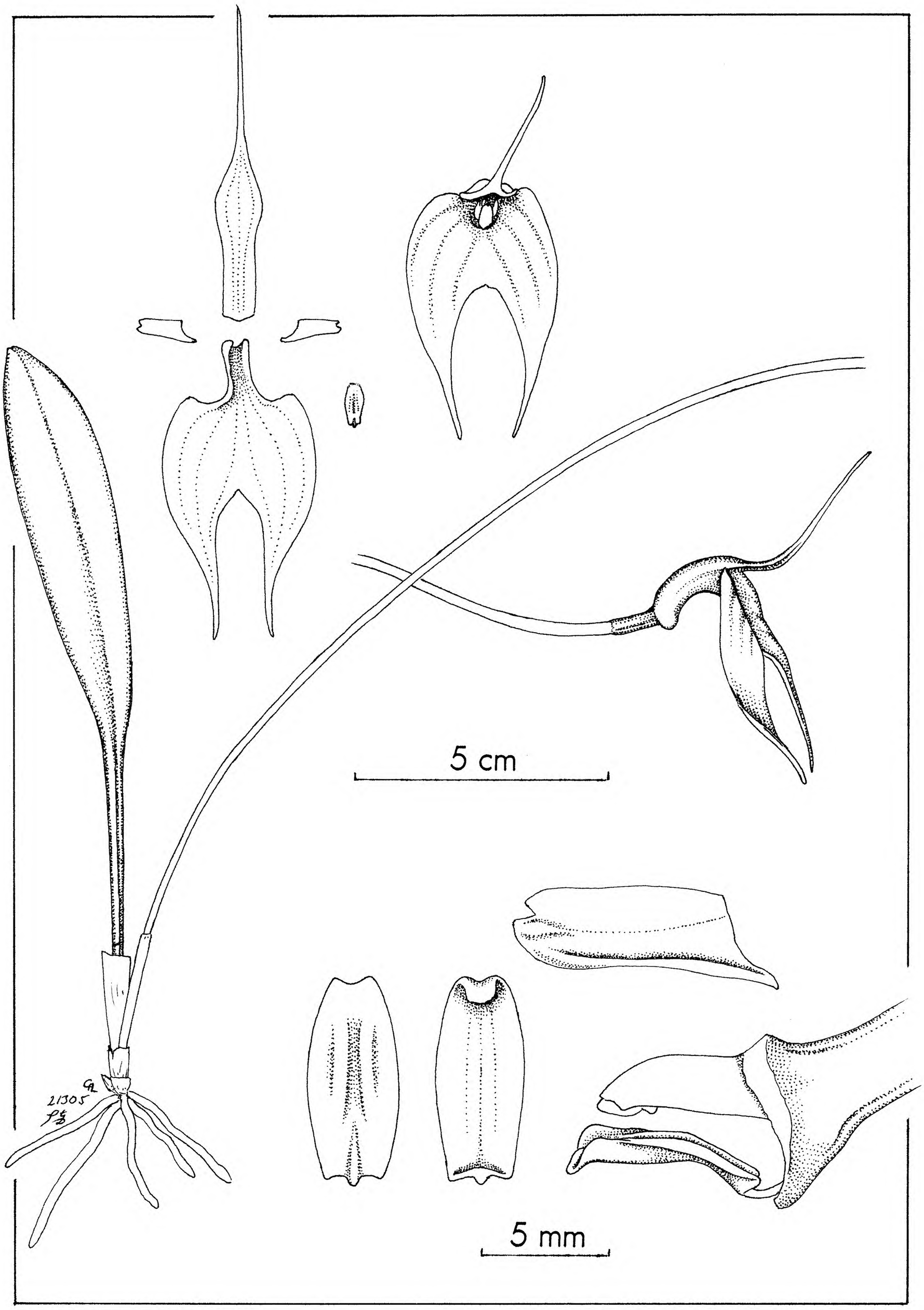

Plate 698. Masdevallia venusta

Four new species of the *Masdevallia* alliance are given Plate numbers continuing the sequence in the *Systematics of Masdevallia* in *Icones Pleurothallidinarum.*

Alaticaulia barbozae Luer, sp. nov.

Ety.: Named for Arcenio Barbosa who first collected this species.

Inter species *Alaticauliae* planta mediocris caespitosa, pedunculo folio plus minusve aequilongo, racemo congesto successivifloro, sepalorum caudis elongatis plus minusve compressis, petalis subtriangularibus ad centrum incrassatis, labelli hypocheilio oblongo et epichilio obovoideo marginibus incurvis abrupte apiculato distinguitur.triangulari acuto, et labello late oblongo distinguitur.

Plant medium in size, epiphytic, caespitose; roots fleshy. Ramicauls stout, erect, 3-4 cm long, enclosed by a loose, tubular sheath. **Leaf** erect, coriaceous, elliptical-obovate, 15-21 cm long, 2.2-2.6 cm wide, obtuse to rounded at the apex, gradually narrowed below into the subpetiolate base. **Inflorescence** a congested, successively flowered raceme ca. 3 cm long, borne by a stout, erect peduncle 14 cm long, with a bract near the base, from near the base of a ramicaul; floral bracts oblique, tubular, acute, 2.5 cm long; pedicels 3 cm long; ovary 4-5 mm long; **sepals** fleshy, dull rose, green toward the tips, pusticular, the dorsal sepal with the blade obovate, 10 mm long, 5 mm wide, the apex broad, contracted into a forwardly directed, green tail 4.5 cm long, connate to the lateral sepals for 5 mm to form a tube, the lateral sepals ovate, oblique, subacute, the blades 14 mm long, 7 mm wide, connate 5 mm, the apices broad, contracted into more or less compressed, green tails also 4.5 cm long; **petals** orange, subtriangular with obtuse, basal angles, thickened centrally, 5.5 mm long, 3 mm wide at the base, the apex subtruncate; **lip** red-brown, 5.5 mm long, 2 mm wide, divided above the middle by marginal folds into an oblong hypochile 3 mm long, and an obovoid epichile 2.5 mm long with recurved margins, the apex convex, broadly obtuse, minutely apiculate, the disc superficially channeled between the marginal folds, the base subtruncate, thickened, hinged beneath; **column** white, semiterete, 5 mm long, the foot with a short, slender, incurved extension.

PERU: **Amazonas**: Prov. of Bongará, between Moyabamba and Pedro Ruiz, alt. ca. 1800 m, collected by Arcenio Barboza, received by Claire Rojohn June 2006, flowered in cultivation in Hales Corners, WI, July 2008, by *C. Rojohn s.n.*, (Holotype of *A. barbosae*: MO), C. Luer illustr. 21310.

Among the species of *Alaticaulia*, this species, apparently endemic in Amazonian Peru, is distinguished by a congested, successively flowered raceme with long, compressed, sepaline tails. The sepals are pusticulate within; the petals are subtriangular with obtuse angles at the base and callous centrally. The epichile of the lip is obovate with recurved margins and with the obtuse apex shorftly apiculate.

In Part One of the Systematics of *Masdevallia*, Icones XIX, featuring the species currently residing in *Alticaulia*, this species keys out to *A. xylina* (Rchb.f.) Luer, but is distinguished from the latter by broader tails at the base, subtriangular petals, and a lip without the apical keel.

Masdevallia dubbeldamii Luer & Sijm, sp. nov.

Ety.: Named for Piet Dubbeldam of Heijningen, The Netherlands, co collector of the species.

Species haec *Masdevalliae Delassandroi* Luer affinis, sed foliis obtusis latioribusque, sepalis petalisque persimilis, sed labello rhombeo, infra apice constricto lobulum formanti, et marginibus minute undulatis crispatis differt.

Plant medium in size, epiphytic, caespitose; roots slender. Ramicaul slender, erect, blackish, 1.5-2 cm long, enclosed by 2-3 tubular sheaths. **Leaf** erect, coriaceous, dark green, long-petiolate, 4-8 cm long including the petiole ca. 3 cm long, the blade elliptical, subacute to obtuse, 1.8-2 cm wide, cuneate below into the blackish petiole. **Inflorescence** a solitary flower borne by an erect, slender peduncle 5.5 cm long, with a bract near the base, from low on the ramicaul; floral bract 13 mm long; pedicel 13 mm long; ovary 4 mm long; **sepals** light yellow-green, dotted with red within, widely expanded, the dorsal sepal oblong, shallowly concave, 17 mm long, 10 mm wide, connate to the lateral sepals for 4 mm into a shallow cup, the apex obtuse, contracted into a slender, reflexed tail 4 cm long, the lateral sepals oblong, 21 mm long, 11 mm wide, connate 6 mm, the apices oblique, broadly obtuse to rounded, contracted into tails 3.5 cm long, similar to that of the dorsal sepal; **petals** yellow-white with purple dots, more or less oblong, 4 mm long, 1.5 mm wide, the apex narrowly truncate, the labellar margin with a broadly rounded lamella along the middle third, ending in an obtuse, retro-

rse tooth at the base; **lip** white, marked with purple, rhombic, 4.5 mm long, 3 mm wide, the margins thin, minutely crisped, undulate, above the middle, constricted below the apex to create a red-purple lobule with minute, recurved margins, the disc convex below the middle, the base loosely hinged from the cavity beneath to the column-foot; **column** yellow-white with purple dots and margin, semiterete, 4 mm long, the foot vestigial, with a slender, incurved extension.

ECUADOR: **Zamora-Chinchipe**: above Valladolid, 30 Aug. 2003, flowered in cultivation Oct. 2007, Venhuizen, the Netherlands, *T. Sijm 230130* (Holotype of *M. dubbeldamii*: MO); C. Luer illustr. 21257.

This species is very similar to *Masdevallia dalessandroi* Luer & Hirtz, differing mostly in the labellum. Although probably of little consequence, the leaves of *M. dubbeldamii* are broad and obtuse, while those of *M. dalessandroi* are narrow and acute. The sepals and petals are of similar size, shape and color, but the lip of *M. dubbeldamii* is rhombic while that of *M. dalessandroi* is elliptical. In addition, the margins of the lip of *M. dubbeldamii* are minutely crisped and undulate, and markedly constricted below the apex to create a terminal lobule.

Masdevallia parsonsii Luer, sp. nov.

Ety.: Named for Ronald L. Parsons, Jr., of Daly City, California, who cultivates this species.

Inter species *Masdevalliae* subsectionis *Caudatae* planta mediocris caespitosa, pedunculo folio multilongiore, sepalis albis roseo suffusis, sepalo dorsali concavo antrorso, petalorum processo late triangulari acuto, et labello late oblongo distinguitur.

Plant medium in size, epiphytic, caespitose; roots slender. Ramicauls stout, erect, 2 cm long, enclosed by a loose, tubular sheath. **Leaf** erect, coriaceous, long-petiolate, 6.5 cm long including the petiole ca. 3 cm long, the blade elliptical, obtuse to rounded at the apex, 1.7 cm wide, cuneate below into the petiole. **Inflorescence** a single flower, borne by a slender, erect peduncle 11-12 cm long, with a bract near the base, from near the base of a ramicaul; floral bract tubular, 10-11 mm long; pedicel 15 mm long; ovary 9 mm long; **sepals** white, suffused with rose centrally, glabrous, the dorsal sepal obovate, concave, 15 mm long, 9 mm wide, with the margins cellular erose, connate to the lateral sepals for 2 mm to form a gaping flower, the apex rounded, abruptly contracted into a slender, yellowish tail 3 cm long, the lateral sepals expanded, ovate, subacute, oblique, 10 mm long, 7 mm wide, connate 2 mm, the apices contracted into slender tails similar to that of the dorsal sepal; **petals** white, oblong-triangular, 6 mm long, 2 mm wide, the apex subtruncate, minutely apiculate, the labellar margin with a broadly triangular, acute, retrorse wing with a thickened margin; **lip** white, dotted with rose, broadly oblong, 5.5 mm long, 3.5 mm wide, the apex rounded with a purple, midline callus, the disc superficially channeled, the base subtruncate, thickened, hinged beneath; **column** white, semiterete, 4 mm long, the foot with a broad, incurved extension.

COLOMBIA: without collection data, obtained from a Colombian collector, in 2004, flowered in cultivation by Ron Parsons s.n. in Daly City, California, April 2008, *C. Luer 21302* (Holotype of *M. parsonsii*: MO).

With purplish sepals, this species is reminiscent of the Peruvian *Masdevallia cloesii* Luer, differing most obviously in the great length of the peduncles that carry the flower well above the leaves. Morphologically, the sepals of both species are superficially similar to the orange sepals of *M. mandarina* Luer & R.Escobar. The sepals of *M. parsonsii* are white and suffused with rose centrally on the dorsal sepal and toward the base of the lateral sepals. The petals of are distinguished by an acute, retrorse, triangular wing, and the lip of is broadly elliptical and featureless except for being thickened at the base.

Spilotantha tonsijmii Luer, sp. nov.

Ety.: Named for Ton Sijm of Venhuizen, the Netherlands, who collected this species.

Species haec *Spilotanthae melanopodis* (Rchb.f.) Luer affinis, sed sepalorum tubo proportione longiore ad aperturam constricto, et labello angustiore differt.

Plant small, epiphytic, caespitose; roots slender. Ramicauls slender, erect, 1.5 cm long, enclosed by a loose, tubular sheath. **Leaf** erect, coriaceous, long-petiolate, 8 cm long including the petiole ca. 2 cm long, the blade narrowly elliptical, subacute, 0.7 cm wide, narrowly cuneate below into the pe-

tiole. **Inflorescence** an erect, simultaneously 3- to 5-flowered raceme, 3-5 cm long, borne by the peduncle ca. 7 cm long, with a bract near the middle, from near the base of a ramicaul; floral bract oblique, acute, 4 mm long; pedicel 3 mm long; ovary 2 mm long; **sepals** light green, sparsely marked with dark purple, glabrous, the dorsal sepal oblong, concave, curved, 7 mm long excluding the tail, 3 mm wide expanded, 3-veined, the apex continuous with the thick tail 6 mm long, dirty purple above the middle, connate to the lateral sepals for 7 mm into a curved tube, constricted at the bases of the tails, the lateral sepals connate 7 mm into a curved, concave lamina, 7 mm long, 3 mm wide, 6-veined, the apices continuous into thick, terete tails 6 mm long; **petals** white, translucent, oblong, 3.5 mm long, 1 mm wide, the apex truncate with a central, triangular apiculum, the margins minutely fringed, with a longitudinal carina within the labellar margin terminating in an obtuse, triangular process at the base; **lip** yellow, flecked with dark purple, narrowly ovate, 4.5 mm long, 1 mm wide, with a pair of thin, longitudinal wings on the middle third overlying the margins, the distal third narrowly oblong, minutely denticulate, narrowly obtuse at the tip, the disc with a shallow, longitudinal channel, the base subcordate, hinged beneath; **column** green, spotted with dark purple, semiterete, 3 mm long, the foot with a 1.5 mm long.

ECUADOR: **Loja**: near El Cisne, collected by Antonius Sijm, cultivated in Venhuizen, the Netherlands, by *A.P. Sijm s.n.* (Holotype of *S. tonsijmii*: MO), C. Luer illustr. 21307.

This species is another of several of the genus *Spilotantha* that occurs in the seemingly semi arid southwestern Ecuador. It is similar to *Spilotantha melanopus* (Rchb.f.) Luer, but it is distinguished from the latter by a proportionately longer sepaline tube that is constricted at the orifice at the bases of thick, terete tails. The oblong petals are basically similar with minutely denticulate margins and a triangular tip at the truncate apex, and the marginal folds of the narrowly ovate lip overlap the middle third.

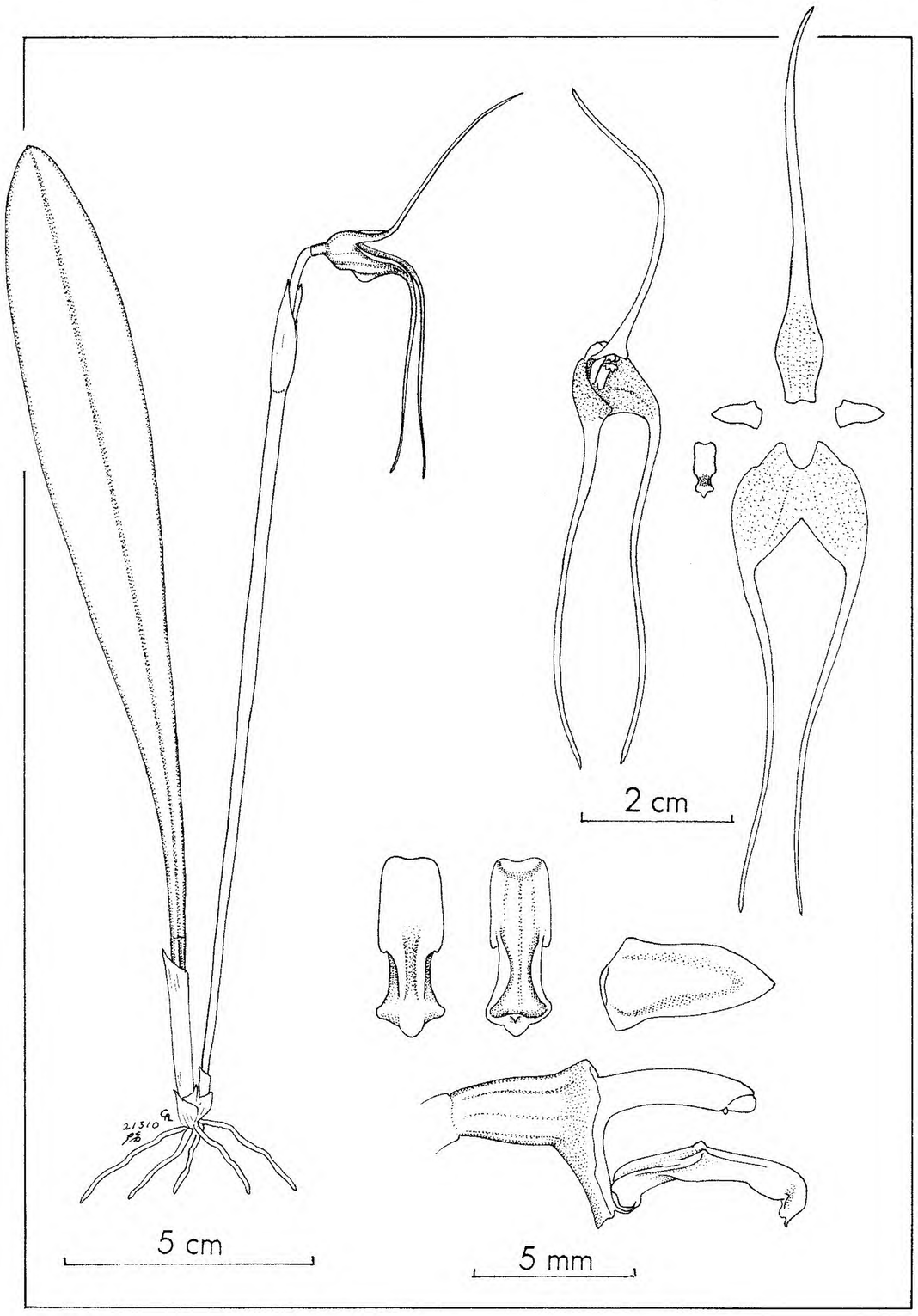

Plate 699. Alaticaulia barbosae

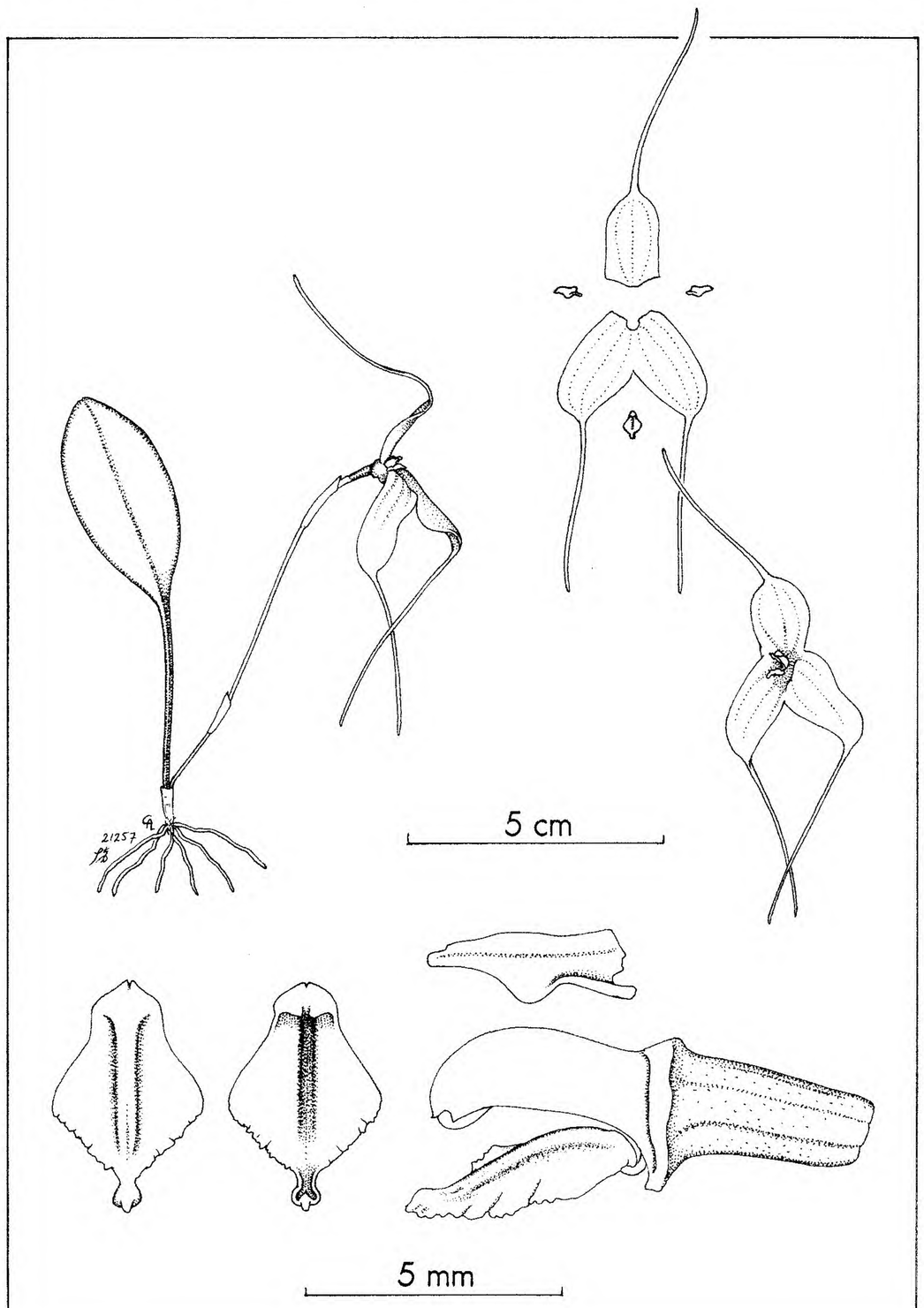

Plate 700. Masdevallia dubbeldamii

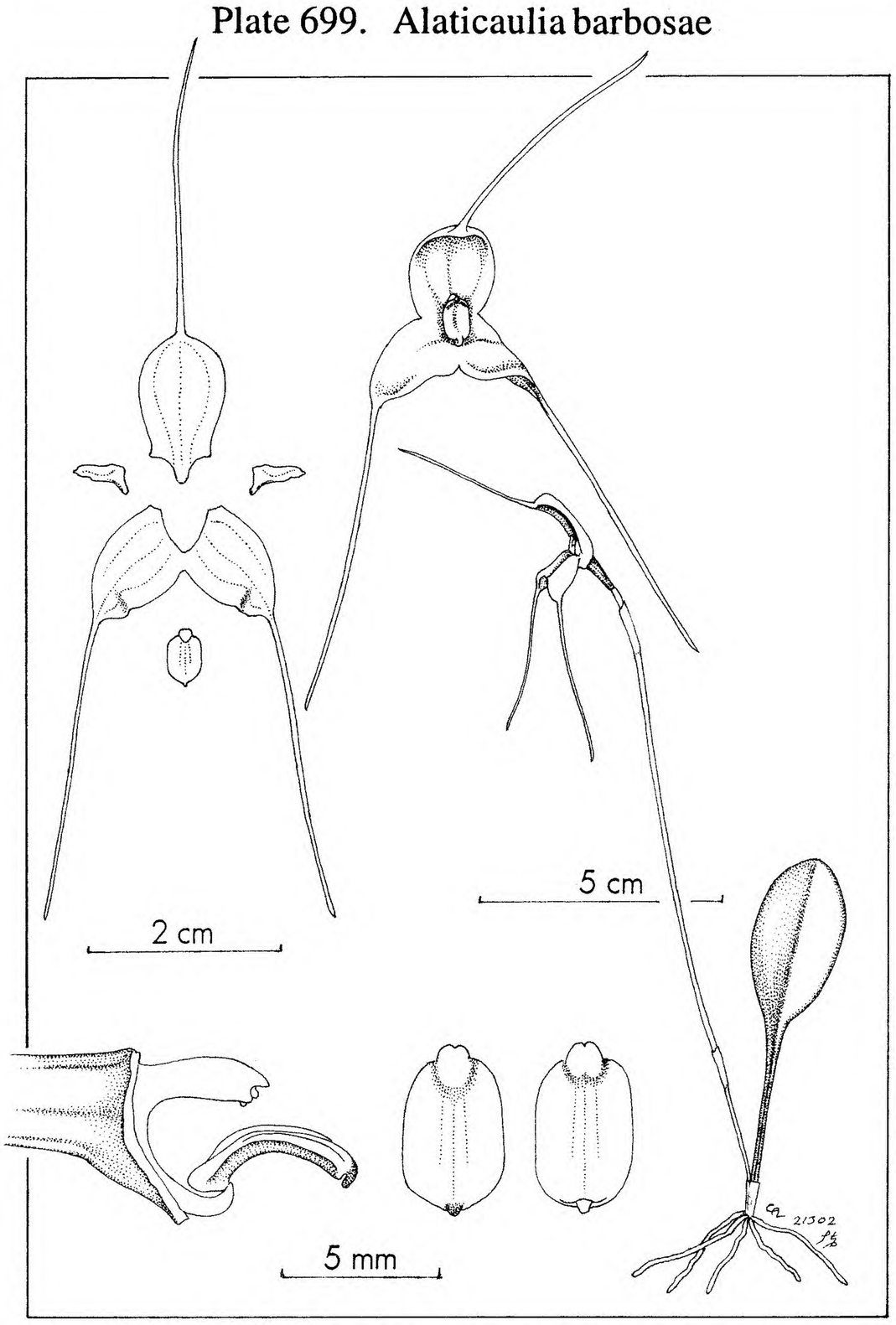

Plate 701. Masdevallia parsonsii

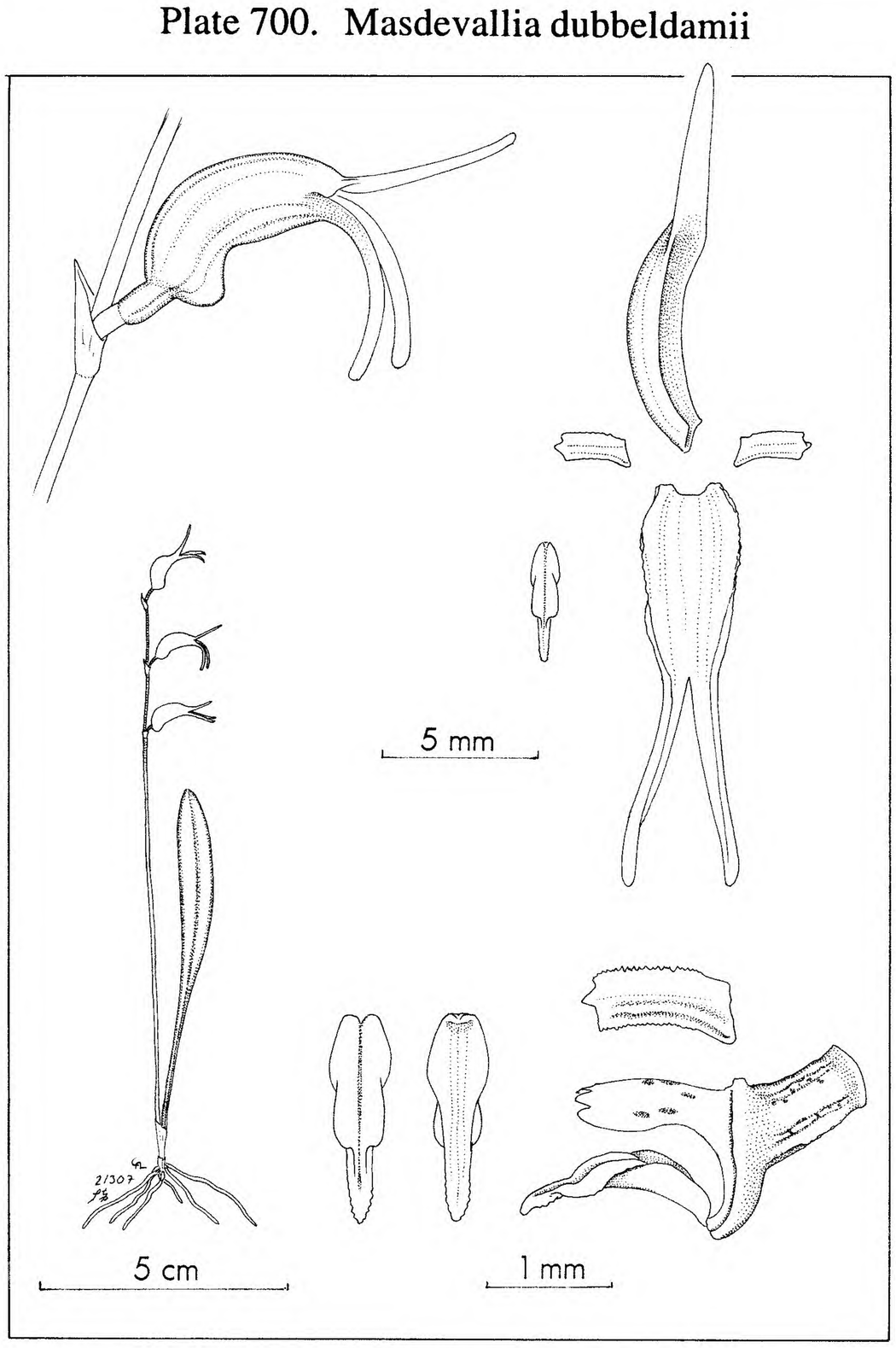

Plate 702. Spliotantha tonsijmii

ADDENDA: NEW SPECIES OF *LEPANTHES* OF ECUADOR

The following 16 species described as new bring the total number of species presently known from Ecuador to 323.

Lepanthes bipollicaris Luer & Hirtz
Lepanthes calophlebia Luer & Thoerle
Lepanthes chinapintae Luer & Hirtz
Lepanthes cirrata Luer & Hirtz
Lepanthes crucis Luer & Hirtz
Lepanthes laxiflora Luer & Hirtz
Lepanthes pelorostele Luer & Hirtz
Lepanthes pretiosa Luer & Hirtz
Lepanthes quasimodo Luer & Hirtz
Lepanthes rubrolineata Luer & Hirtz
Lepanthes stellaris Luer & Hirtz
Lepanthes thoracica Luer & Hirtz
Lepanthes thysanota Luer & Hirtz
Lepanthes tortuosa Luer & Hirtz
Lepanthes velosa Luer & Hirtz
Lepanthes zanklopetala Luer & Hirtz

Lepanthes bipollicaris Luer & Hirtz, sp. nov.

Ety.: From the Latin *bipollicaris*, "with two thumbs," referring to the midlobes of the petals.

Planta parva, racemo congesto folio ovato breviore, sepalis carnosis carinatis, sepalo dorsali late ovato obtuso, sepalis lateralibus subacutis semiconnatis uninervis, petalis transverse oblongo cum lobo laterali pollicari, labello bilaminato laminis parvis subcircularibus distinguitur.

Plant small, epiphytic, caespitose; roots slender. Ramicauls proportionately stout, erect, 4-7 mm long, enclosed by 6-7 microscopically papillose, lepanthiform sheaths with oblique ostia. **Leaf** erect, coriaceous, ovate, acute, 20-25 mm long, 9-14 mm wide, the base broadly cuneate into a petiole 2 mm long. **Inflorescence** a congested, successively many-flowered raceme to 12 mm long, borne behind the leaf by a slender peduncle 2 mm long; floral bracts 1 mm long; pedicel 1.5 mm long; ovary 1 mm long; flowers yellow; **sepals** fleshy, carinate, entire, the dorsal sepal broadly ovate, obtuse, slightly acuminate, 2 mm long, 1.6 mm wide, 3-veined, the lateral sepals ovate, oblique, acute, connate 1 mm into a bifid lamina 2 long, 2.2 mm wide, 1-veined; **petals** transversely oblong, glabrous, bilobed, 0.5 mm long, 1.2 mm wide, the lobes oblong with rounded ends, the upper lobe slightly larger than the lower lobe rounded, with a marginal lateral lobe 0.2 mm long between the lobes; **lip** bilaminate, glabrous, fleshy, the blades subcircular, 0.9 mm long, the connectives broad, continuous with the tips of the blades, the body broad, thick, connate to the base of the column, with a minutely oblong, microscopically ciliate appendix; **column** terete, 1 mm long, the anther apical, the stigma ventral.

ECUADOR: **Azuay**: east of Cuenca, above Cumbe, alt. 2800 m, 6 Mar. 2001, *C. Luer, J. Luer & A. Hirtz 19739* (Holotype of *L. bipollicaris*: MO).

This species, apparently endemic at a high altitude in southeastern Ecuador, is not remarkable with a small habit, ovate leaves, and a short, congested, small-flowered raceme. The floral parts are fleshy and glabrous, the dorsal sepal being obtuse and the laterals semiconnate and acute. A small, thumb-like lateral lobe is present between the obtuse lobes of the petals. The blades of the tiny lip are rounded and continuous with the connectives. The minute appendix is oblong and microscopically ciliate.

Lepanthes calophlebia Luer & Thoerle, sp. nov.

Ety.: From the Greek *calophlebius*, "beautifully veined," referring to the reticulated leaves.

Planta perpusilla, racemo folio transverse ovato reticulato longiore, sepalis rubris denticulatis ovatis acutis, petalorum lobo superiore oblique oblongo obtuso, lobo inferiore multiminore triangulari acuto, labelli laminis oblongis acutis carinatis corpore angusto, appendice pedunculata capitulo fissurata distinguitur.

Plant very small, vigorous, floriferous, epiphytic, caespitose; roots slender. Ramicauls slender, erect to suberect, 15-20 mm long, enclosed by 6 minutely ciliate, lepanthiform sheaths with oblique ostia. **Leaf** suberect, thinly coriaceous, reticulated, suffused with purple along the branching veins, transversely ovate, broadly obtuse, minutely mucronate, 8 mm long, 8.5-9 mm wide, the base abruptly contracted into a petiole 1 mm long. **Inflorescence** 1-2 loose, successively flowered racemes to 20 mm long with a peduncle 5-10 mm long, borne from beneath the leaf; floral bracts 1-1.25 mm long, minutely ciliate; pedicel 2 mm long; ovary curved, less than 1 mm long; **sepals** membranous, bright red, finely denticulate or ciliate, the dorsal sepal ovate, acute, 4 mm long, 2.5 mm wide, 3-veined, the lateral sepals connate 0.5 mm at the base, ovate, oblique, acute, narrowly acuminate at the tip, 4 mm long, 2 mm wide, 2-veined; **petals** similarly bright red, transversely and obliquely bilobed, the upper lobe ovate, obtuse, concave, glabrous, 1.6 mm long, 0.9 mm wide, the lower lobe obliquely narrowly triangular, acuminate, acute, 1 mm long medially, 0.5 mm long exteriorly; **lip** also bright red, glabrous, bilaminate, the blades oblong, abruptly acute, carinate, 2 mm long, the connectives narrowly oblique, the body narrow, connate to the base of the column, the appendix pedunculate with the terminal head cleft and microscopically pubescent; **column** terete, 1.5 mm long, the anther dorsal, the stigma ventral.

ECUADOR: **Zamora-Chinchipe**: collected by D. D'Alessandro, Oct. 2001, flowered in cultivation in Little Compton, RI, by *L. Thoerle s.n.* (Holotype of *L. calophlebia*: MO), C. Luer illustr. 21261.

This tiny, freely flowering gem, apparently endemic in southermost Ecuador, is characterized by slender ramicauls with about six narrow, lepanthiform sheaths. From beneath minute, rose-reticulated leaves that are broader than long, successively flowered racemes produce a shower of proportionately large, bright red flowers. The sepals are acute and minutely denticulate; the upper lobe of the petals is ovate, obtuse and conspicuous while the much smaller lower lobe is acutely triangular; the blades of the lip are carinate with narrowly oblique connectives, and a pedunculated appendix suspended beneath.

Lepanthes cirrata Luer & Hirtz, sp. nov.

Ety.: From the Latin *cirratus*, "like a tendril," referring to the slender, twisted tip of the leaf.

Species haec *Lepanthidis tortilis* Luer & Hirtz affinis, floribus majoribus, sepalis ciliatis, petalis minutissime pubescentibus cum lobo inferiore lineari, et labelli laminis glabris differt.

Plant small, weak, epiphytic, caespitose; roots slender. Ramicauls suberect to drooping, very slender, 9 cm long, enclosed by 10-12 closely fitting, glabrous lepanthiform sheaths, the ostia microscopically ciliate. **Leaf** thinly coriaceous, broadly elliptical, 22 mm long excluding the prolonged apex, 15 mm wide, the apex obtuse, contracted into a slender, twisted segment 10 mm long, the base broadly cuneate into a petiole 1 mm long. **Inflorescence** a congested, distichous, successively several-flowered raceme up to 7 mm long, borne on top of the leaf by a filiform peduncle 8-10 mm long; floral bracts 1 mm long; pedicels 1.5 mm long; ovary 1 mm long; **sepals** translucent yellow, ciliate, the dorsal sepal ovate, subacute, 4 mm long, 2.8 mm wide, 3-veined, connate to the lateral sepals for 1 mm, the lateral sepals connate 2 mm into an ovate, bifid lamina with acute apices, 4 mm long, 3 mm wide, 4-veined; **petals** brown, microscopically pubescent, transversely bilobed, 1 mm long, 5.3 mm wide, the upper lobe ovate, acute, 2.3 mm long, 1 mm wide, the lower lobe linear, acute, 3 mm long, 0.5 mm wide; **lip** dark rose, glabrous, bilaminate, the blades thin, ovate, round at the base, acute at the tip, 1.5 mm long, the connectives oblong-cuneate, the body connate to the base of the column, the sinus occupied by an ovoid, concave, minutely ciliate appendix with a small, flexibly incurved apical segment; **column** 1.5 mm long, the anther dorsal, forked, the stigma ventral.

ECUADOR: **Imbabura**: near Lita, collected and cultivated by Ecuagenera, Gualaceo, flowered in cultivation 7 Mar. 2001, *C. Luer 19831* (Holotype of *L. cirrata*: MO).

This species and the closely related *Lepanthes tortilis* Luer & Hirtz are apparently endemic in an area of relatively low altitude in northwesterm Ecuador. It differs from the latter by larger flowers; ciliate sepals; microscopically pubescent, instead of long-pubescent petals; narrowly linear lower lobes of the petals, instead of triangular and curved; and glabrous, instead of pubescent blades of the lip. Both species are distinguished by a tendril-like prolongation of the tip of the leaves.

Lepanthes chinapintae Luer, sp. nov.

Ety.: Named for the community of Chinapinta in the Cordillera del Condor, near where the species was collected.

Planta parva mediocrisque caespitosa, racemo congesto folio elliptico acuto breviore, sepalis glabris acutis acuminatis, sepalo dorsali anguste ovato, seplis lateralibus in synsepalum latum bifidum connatis, petalis transversel bilobis cum lobuli marginale, et labelli laminis ellipticis convexis cum appendice dense villosa distinguitur.

Plant small, epiphytic, caespitose; roots slender. Ramicauls erect, 4-7 cm long, enclosed by 9-10 ciliate, lepanthiform sheaths, widely dilated at the ostia. **Leaf** coriaceous, ovate, acute, acuminate, 3-4.5 cm long, 1.4-1.7 cm wide, the base cuneate into the petiole 2-3 mm long. **Inflorescence** a congested, successively flowered raceme borne behind the leaf by a filiform peduncle 10 mm long; floral bracts 1 mm long; pedicel 1 mm long; ovary 1.5 mm long, glabrous; **sepals** light yellow, glabrous, carinate, the dorsal sepal broadly ovate, acute, acuminate, 6 mm long, 2.75 mm wide, 3-veined, thickened at the base, connate to the lateral sepals for 0.5 mm, the lateral sepals connate 4 mm into a broadly ovate, bifid lamina, 7 mm long, 6.5 mm wide, 4-veined, the apices acute, acuminate; **petals** cellular-pubescent, transversely bilobed, with a marginal, lobelike protrusion between the lobes, 1 mm long, 4 mm wide, the upper lobe white, suffused with purple medially, obliquely oblong, obtuse, 2.5 mm long, 1.5 mm wide, the lower lobe yellow, narrowly oblong beyond a widened base, 1.75 mm long, 1.5 mm wide at the base; **lip** yellow with purple edges, minutely pubescent, bilaminate, the blades narrowly elliptical, convex, rounded at the ends, 1.5 mm long, the connectives broadly cuneate, the body narrow, connate to the column at the base, the appendix ovate, sessile, densely villous; **column** 2 mm long, the anther dorsal, the stigma ventral.

ECUADOR: **Zamora-Chinchipe**: Cordillera del Condor, alt. 1500 m, collected by and flowered in cultivation at Ecuagenera, 4 March 2001, *C. Luer 19653* (Holotype of *L. chinapintae*: MO).

This species, not remarkably distinct vegetatively with an ovate leaf and a short, congested raceme, is remarkable for its comparatively large, colorful flowers. The dorsal sepal is ovate and sharply acute, and the broadly ovate synsepal is twice as wide with acuminate tips of the sepals. The margin of the transversely lobed petals is protuberant and rounded between the lobes; the blades of the lip are convex and minutely pubescent; and the appendix is ovoid and densely villous.

Lepanthes crucis Luer & Hirtz, sp. nov.

Ety.: From the Latin *crux, crucis*, "of a cross," referring to the crossed upper lobes of the petals.

Planta parva, racemo sublaxo folio elliptico longiore, sepalis integris, sepalo dorsali ovato acuto concavo, sepalis lateralibus acutis supra medium connatis convexis, petalis minutissime pubescentibus lobis superioribus anguste oblongis decussatis lobis inferioribus triangularibus labello bilaminato laminis minutissime pubescentibus ovatis cum appedici triangulari distinguitur.

Plant small, epiphytic, caespitose; roots slender. Ramicauls slender, erect, 3-5.5 cm long, enclosed by 5-7 ciliated, lepanthiform sheaths with obliquely dilated ostia. **Leaf** erect, coriaceous, elliptical, subacute, 15-17 mm long, 8-10 mm wide, the base cuneate into a petiole 3 mm long. **Inflorescence** a sublax, successively several-flowered raceme to 35 mm long, borne behind the leaf by a slender peduncle 10-15 mm long; floral bracts 1 mm long; pedicels 2 mm long; ovary 1 mm long; **sepals** yellow, entire, the dorsal sepal ovate, acute, concave, 6 mm long, 3.5 mm wide, 3-veined, the lateral sepals ovate, oblique, acute, connate 3 mm into a bifid lamina 6 long, 4 mm wide, 4-veined; **petals** dark yellow, transversely bilobed, oblique, 4.5 mm wide, 1-veined, minutely pubescent, the upper lobe narrowly oblong, round at the tip, 0.5 mm long, 3 mm long. 0.5 mm wide, the lobes crossing above the lip, the lower lobe triangular, acute, 1.5 mm long and wide; **lip** yellow with brown margin, bilaminate, convex, minutely pucescent, the blades ovate, round at the ends, 2 mm long, the connectives basal, oblong, the body broad, thick, connate to the base of the column, with an external, triangular appendix; **column** terete, 2 mm long, the anther apical, the stigma ventral.

ECUADOR: **Azuay**: Solado, Molleturo, southwest of Cuenca, collected and cultivated by Ecuagenera, 4 Mar. 2001, *C. Luer 19640* (Holotype of *L. crucis*: MO).

This species, apparently endemic in southwestern Ecuador, is distinguished by small, elliptical leaves borne by proportionately longer ramicauls and a sublaxly flowered raceme exceeding, but not twice as long as the leaf. The flowers are proportionately large with a concave dorsal sepal, a convex synsepal, and narrowly oblong lobes of the petals that cross above the lip.

Lepanthes laxiflora Luer, sp. nov.

Ety.: From the Latin *laxiflorus*, "loosely flowered" referring to the raceme.

Planta parva, racemo laxifloro foliis ellipticis obtusis multilongiore, sepalis glabris lateralibus obtusis, petalorum lobo superiore oblongo lobo inferiore triangulari, labelli laminis oblongis concavis, appendice minuto triangulari distinguitur.

Plant small, epiphytic, densely caespitose; roots slender. Ramicauls slender, erect, 3-5 cm long, enclosed by 6-7 glabrous lepanthiform sheaths. **Leaf** erect, coriaceous, elliptical, obtuse, 20-23 mm long including a petiole 3-4 mm long, 8-9 mm wide, the base cuneate into the petiole. **Inflorescence** a loose, flexuous, distichous, successively flowered raceme up to 8 cm long including the filiform peduncle 2-3 cm long, bearing 10-12 flowers; floral bracts 1.5 mm long; pedicels 1.75 mm long; ovary 1 mm long; **sepals** brown with green veins, glabrous, the dorsal sepal ovate, acute, 8 mm long, 4 mm wide, 3-veined, connate to the lateral sepals for 1 mm, the lateral sepals oblong, oblique, broadly obtuse, 7 mm long, each 2-veined, connate 5 mm into a bifid lamina 5 mm wide; **petals** yellow-white with purple inner edge, cellular-pubescent, transversely bilobed, 1.25 mm long, 5 mm wide, the upper lobes obliquely oblong, round at the tip, 3 mm long. 0.5 mm wide, the lower lobe triangular, oblique, acute, 1.5 mm long and wide at the base; **lip** white with purple inner edge, microscopically pubescent, bilaminate, the blades thick, oblong, concave, with the ends rounded, 2 mm long, the connectives basal, oblong, forming an equally wide body with a minute, acute, triangular appendix in the sinus; **column** 2 mm long, the anther dorsal, the stigma ventral.

ECUADOR: **Zamora-Chinchipe**: Cordillera del Condor, east of Los Encuentros, collected by and flowered in cultivation at Ecuagenera, Gualaceo, 5 Mar. 2001, *C. Luer 19670* (Holotype of *L. laxiflora*: MO).

This little species is known from only one collection in the Cordillera del Condor. It is characterized by a long, loose, successively flowered raceme that far exceeds the small, elliptical leaf in length. The dorsal sepal is acute, but the laterals are deeply connate into a bifid lamina with broadly obtuse apices. The upper lobes of the petals are oblong while the lower lobes are acutely triangular. The blades of the lip are oblong, thick and concave, and are borne by basal collectives with a tiny, triangular appendix in the sinus.

Lepanthes pelorostele Luer & Hirtz, sp. nov.

Ety.: From the Greek *peloros*, "huge," and *stele*, "column," referring to the imposing column.

Planta parva, racemo laxove congesto longipedicellato folio ovato longuore, sepalis angustissime triangularibus, petalis minutissime trifurcatis, labello minutissime trilobato, columna tereti proportione multimajori distinguitur.

Plant small, epiphytic, caespitose; roots slender. Ramicauls slender, erect, 2-3 cm long, enclosed by 8-9 microscopically ciliate, lepanthiform sheaths with oblique apices. **Leaf** erect, thinly coriaceous, elliptical-ovate, 9-11 mm long, 6-7 mm wide, contracted below into a petiole ca. 1 mm long. **Inflorescence** an erect to arching, successive, loose to congested, many-flowered raceme 10 mm or more long, borne beyond the leaf by a peduncle 10-15 mm long, from the apex of the ramicaul at the base of the leaf; floral bracts 0.75 mm long; pedicels 1.5 mm long; ovary 1.25 mm long; **sepals** free, white, membranous, glabrous, the dorsal sepal narrowly triangular, acute, 3.75 mm long, 0.75 mm wide, 3-veined at the base, the lateral sepals narrowly triangular, acute, carinate, 4 mm long, 0.75 mm wide, 2-veined at the base; **petals** purple, trilobed, the lobes filiform, minutely pubescent, the longest lobe 0.5 mm long, the next, 0.25 mm long, the third rudimentary lobe ca. 0.1 mm long at the base of the petal; **lip** purple, minutely pubescent, trilobed, with lateral blades curved, hugging the under surface of the column, 0.3 mm long, and an erect midlobe ca. 0.1 mm long, connate to the column ca. 0.2 mm above the base; **column** terete, 2 mm long, the anther dorsal, the stigma ventral.

ECUADOR: **Pichincha**: El Jordan, north of San Pedro Vicente Maldonado, west of Los Cedros, alt. 400 m, 2002, *A. Hirtz 8430* (Holotype of *L. pelorostele*: MO), C. Luer illustr. 21284.

The proportionately large, terete column of this species dwarfs the extremely small petals and lip that cluster about its base. The narrowly triangular sepals that surround the column are twice as long. The minute, thread-like petals are three-lobed, but the midlobe is nearly microscopic. Hugging the undersurface of the column near the base are the pair of curved lobes of the minute three-lobed lip, while the third lobe stands erect at the point of bifurcation, probably analagous to an appendix.

Lepanthes pretiosa Luer & Hirtz, sp. nov.

Ety.: From the Latin *pretiosus*, "precious," referring to the charm of this species.

Species haec *Lepanthidis calodictyonis* Hook. affinis, sed habitu minore, sepalis petalisque nonciliatis, petalorum lobo superiore oblongo retuso, lobo inferiore subrotundo cum cauda lineari, labello bilobo integro, lobis obliquis rotundis differt.

Plant small, epiphytic, caespitose; roots slender. Ramicauls erect, slender, 18-20 mm long, enclosed by 5 microscopically ciliate, lepanthiform sheaths. **Leaf** erect, thinly coriaceous, green with brown reticulation, broadly elliptical to circular, 10-12 mm long, 9 mm wide, the margins sinuate, the apex rounded, the rounded base abruptly contracted into a petiole 1 mm long. **Inflorescence** a subdense, successively few-flowered raceme up to 5 mm long, borne on top and beyond the tip of the leaf by a peduncle 6 mm long; floral bracts 0.75 mm long; pedicels 1.5 mm long; ovary carinate, 2.5 mm long; **sepals** translucent light yellow, glabrous, carinate, carinate, the dorsal sepal circular, with the apex obtuse, shortly acuminate, 2.25 mm long, 2.25 mm wide, 3-veined, very shortly connate to the lateral sepals, the lateral sepals ovate, oblique, acuminate, acute, 2.5 mm long, 1.3 mm wide, connate 0.5 mm, 2-veined; **petals** purple, microscopically pubescent, transversely bilobed, 0.75 mm long, 2.75 mm wide, the upper lobe suboblong, retuse at the tip, 1.5 mm long, 0.5 mm wide, the lower lobe obliquely subcircular, 0.4 mm long, 0.5 mm wide, with a linear process 1 mm long from the inner margin; **lip** purple, microscopically pubescent, transversely bilobed, 0.4 mm long, 1 mm wide, the apices and bases rounded, shortly unguiculate, connate to the column above the base; **column** purple, subclavate, 0.75 mm long, the anther dorsal, the stigma subapical.

ECUADOR: **Pichincha**: El Jordan, north of San Pedro Vicente Maldonado, west of Los Cedros, alt. 400 m, 2002, *A. Hirtz 8431* (Holotype of *L. pretiosa*: MO), C. Luer illustr. 21283.

This little species is allied to *Lepanthes calodictyon* Hook., but distinguished by a smaller habit; non-ciliate sepals, petals and lip; an erect, oblong, upper lobe of the petals with a retuse tip; a short, rounded, lower lobe with a one-millimeter-long process from the inner margin; and a bilobed lip with rounded ends.

Lepanthes quasimodo Luer, sp. nov.

Ety.: Named for Victor Hugo's character Quasimodo, alluding to the shape of the flower.

Species haec *Lepanthes pubescenti* Luer affinis, sed foliis sepalisque glabris, sepalis atropurpureis synsepalo quam sepalo dorsali minore, et pedicelis columnaque glabris differt.

Plant medium in size, epiphytic, caespitose; roots slender. Ramicauls suberect to horizontal, comparatively stout, 5-9 cm long, enclosed by 10-13 ciliate, lepanthiform sheaths, widely dilated at the ostia. **Leaf** dark purple, coriaceous, ovate, acute, sulcate with the lateral halves convex, microscopically cellular-glandular toward the apex, 3.5-4.5 cm long, 1.2-2.2 cm wide, the base cuneate into the petiole 2 mm long. **Inflorescence** a congested, secund, successively several-flowered raceme up to 10 mm long, borne along the sulcus by a filiform peduncle 8-12 mm long; floral bract 1.5 mm long, sparsely ciliate; pedicel 2 mm long, not ciliate at the junction with the ovary; ovary 2-3 mm long, glabrous; **sepals** dark purple with green edges, glabrous to the naked eye, but with microscopic, marginal cilia, carinate externally, the dorsal sepal broadly ovate, obtuse, acuminate at the tip, 6 mm long, 5 mm wide, 3-veined, connate to the lateral sepals for 1.5 mm, the lateral sepals connate 1.5 mm into a broadly ovate, obtuse lamina, 3 mm long, 4.5 mm wide, 4-veined, abruptly contracted into setiform tails 4 mm long in apposition; **petals** dull green long, glabrous, transversely bilobed, 1 mm long, 4.5 mm wide, the upper lobe oblong, round at the apex, 2.5 mm long, 1.5 mm wide, the lower lobe triangular, incurved, 2 mm long, 1 mm wide; **lip** dull green, glabrous, bilaminate, the blades narrowly oblong, obtuse, 2 mm long, obliquely concave dorsally, the connectives cuneate, the body connate to the column at the base, the appendix transverse with a triangular central portion; **column** 2.5 mm long, the anther dorsal, the stigma ventral.

ECUADOR: **Morona Santiago**: near Pangui, alt. 800 m, collected by and flowered in cultivation at Ecuagenera, 4 March 2001, *C. Luer 19649* (Holotype of *L. quasimodo*: MO).

This species with dark purple leaves and flowers is related to *Lepanthes pubescens* Luer but differs in having glabrous leaves and sepals, although microcopically some cells can be seen replacing cilia. Vegetatively, it is similar with convex halves of the leaves, sulcate between medially, where the short raceme lies. The sepals are shorter and obtuse, but about the same width as those of *L. pubescens*. The slender, linear tails of the lateral sepals are produced abruptly and in apposition from the proportionately small, obtuse synsepal.

Lepanthes rubrolineata Luer & Hirtz, sp. nov.

Ety.: From the Latin *rubrolineatus*, "red-lined," referring to the red-striped lateral sepals.

Species haec *Lepanthidis mammillatae* Luer similis, sed sepalis elliptico-ovatis lateralibus rubrolineatis, petalorum lobis subtriangularibus et ad basim latioribus, labelli connectivis angustioribus et appendice oblonga pubescenti differt.

Plant large, epiphytic, presumably caespitose, roots unknown. Ramicauls stout, erect, 17-19 cm long, enclosed by up to 13 ribbed, microscopically scabrous, lepanthiform sheaths. **Leaf** erect, coriaceous, ovate, acute, acuminate, 7 cm long, 1.8 cm wide, the base cuneate into a petiole ca. 3 mm long. **Inflorescence** 1-2 very congested, distichous, successively many-flowered racemes, up to 30 mm long, borne behind the leaf by a peduncle 30-40 mm long; floral bracts 2 mm long; pedicels 2 mm long; ovary 2 mm long; **sepals** cellular-pubescent, orange, suffused with red, the laterals suffused along the midvein, entire, carinate externally, the dorsal sepal ovate, acute, 7 mm long, 3 mm wide, 3-veined, connate to the lateral sepals for 1 mm, the lateral sepals elliptical, oblique, acute, 7 mm long, 3 mm wide, 2-veined, connate 3 mm; **petals** red, transversely bilobed, 1 mm long, 4 mm wide, the lobes triangular, widest at the base, the upper lobe slightly larger than the lower lobe; **lip** red, glabrous, bilaminate, the blades ovate, with the bases rounded and the apices narrowly rounded, 1.5 mm long, the connectives cuneate, the body narrow, connate to the base of the column, with the appendix entire, oblong, shallowly concave, pubescent; **column** 1.5 mm long, the anther apical, the stigma ventral.

ECUADOR: **Morona-Santiago**: "Chigüinda," alt. 1500 m, collected and cultivated by Ecuagenera, Gualaceo, flowered in cultivation 2 Feb. 2002, *A. Hirtz 8040* (Holotype of *L. rubrolineata*: MO), C. Luer illustr. 21290.

This species from southeastern Ecuador is similar to *Lepanthes mammillata* Luer of northwestern Ecuador. Vegetatively, they are inseparable with their tall, stout ramicauls and ovate, acuminate leaf. The racemes of both species are very congested and successively many-flowered, and their sepals are cellular-pubescent. The dorsal sepal of *L. rubrolineata* is narrowly connate at the base to the lateral sepals, instead of broadly connate. The lobes of the petals of *L. rubrolineata* are more or less triangular, being narrow at the tips, instead of more or less oboblong and widest toward the tips. The lips of the two species are superficially similar, but the connectives of *L. rubrolineata* are only half as wide, and the anther of *L. rubrolineata* is distinctly larger.

Lepanthes stellaris Luer & Hirtz, sp. nov.

Ety.: From the Latin *stellaris*, "with stars," alluding to the star-like flowers.

Species haec *Lepanthidis thylacis* Luer & Hirtz similis, sed habitu majore, pedicelis longioribus, sepalis longissime ovatis duplolongiore, petalorum margine ad medium incurvo vice angulato, labelli laminis columnam amplexis, et appendice anguste lineari differt.

Plant small, epiphytic, presumably caespitose, roots unknown. Ramicauls slender, erect, 4-6 cm long, enclosed by 5-6 ribbed, oblique, nondilated, microscopically ciliate, lepanthiform sheaths. **Leaf** erect, coriaceous, ovate, acute, 2.5-3 cm long, 1.5 cm wide, the base broadly cuneate into a petiole ca. 3 mm long. **Inflorescence** 1-2 very congested, distichous, successively many-flowered racemes, up to 20 mm long, borne behind the leaf by a peduncle 8-10 mm long; floral bracts ciliate, 1 mm long; pedicels 2-2.5 mm long; ovary 1 mm long; **sepals** glabrous, yellow, carinate externally, the dorsal sepal narrowly ovate, acute, 8 mm long, 2.25 mm wide, 3-veined, barely connate to the lateral sepals, the lateral sepals narrowly ovate, oblique, acute, 8 mm long, 2 mm wide, 2-veined; **petals** yellow-orange, transversely bilobed, 1 mm long, 4.5 mm wide, the lobes triangular, obtuse, the upper lobe slightly larger than the lower lobe, with the outer margin incurved at the midvein; **lip** purple, glabrous, bilaminate, the blades oblong, with both ends rounded, 1.2 mm long, the connectives narrowly cuneate, the body narrow, connate to the base of the column, with the appendix erect, narrowly linear, pubescent at the tip; **column** 1.5 mm long, the anther apical, the stigma ventral.

ECUADOR: **Zamora-Chinchipe**: Podocarpus, "San Luis," alt. 1800 m, collected and cultivated by Ecuagenera, Gualaceo, flowered in cultivation 5 July 2002, *A. Hirtz 8270* (Holotype of *L. stellaris*: MO), C. Luer illustr. 21291; same area, alt. 1500 m, collected and cultivated by Ecuagenera, Gualaceo, flowered in cultivation 2 Feb. 2002, *A. Hirtz 8105* (MO).

This species from southeastern Ecuador is similar to *Lepanthes thylax* Luer & Hirtz, also of southeastern Ecuador. Vegetatively, *L. stellaris* is larger with fewer, non-dilated lepanthiform sheaths. The racemes of both species are con-

gested and successively many-flowered, but the pedicels of *L. stellaris* are longer. The sepals of both species are narrowly ovate and almost free from each other, but those of *L. stellaris* are about twice as long and proportionately narrower. The petals of *L. thylax* are obtusely angled on the outer margin at the level of the midvein, while the margin of the petals of *L. stellaris* are incurved. The blades of the lip of *L. stellaris* embrace the column, while those of *L. thylax* cover the column. Most distinctive is the erect, narrowly linear appendix of *L. stellaris*.

Lepanthes thoracica Luer & Hirtz, sp. nov.

Ety.: From the Greek *thoracion*, "little thorax," referring to the raceme that looks like a rib-cage.

Planta parva, racemo congesto longipedicellato folio crasso angustissime lineari breviore, sepalis ciliatis concavis ad apicem acuminatis, petalis transversis pubescentibus, labelli laminis crassis ellipticis pubescentibus corpore lato ad margine crassopyramidali distinguitur.

Plant small, epiphytic, caespitose; roots slender. Ramicauls slender, erect, 3-5 cm long, enclosed by 6-7 minutely ciliate, lepanthiform sheaths with oblique long-attenuate apices. **Leaf** erect, rigid, narrowly linear, acute, channeled, 3-5 cm long, 2 mm wide, ca. 1.25 mm thick, contracted below into the base. **Inflorescence** an erect peduncle 5-10 mm long from the base of the leaf, bearing a congested, long-pedicellate, successively flowered raceme to 10 mm long; floral bracts 1 mm long; pedicels 3.5-4.5 mm long; ovary 1 mm long; **sepals** membranous, color not yet reported, carinate, ciliate, the dorsal sepal ovate, concave, obtuse, shortly acuminate, 4 mm long, 2.5 mm wide, 3-veined, the lateral sepals connate 1 mm at the base, ovate, oblique, acute, narrowly acuminate at the tip, 4 mm long, 2 mm wide, 2-veined; **petals** transversely bilobed, 3 mm long, 0.6 mm wide, the upper lobe oblong, narrowly obtuse, densely pubescent, 1.75 mm long, 0.6 mm wide, the lower lobe similar but slightly smaller, incurved; **lip** densely pubescent, bilaminate, the blades elliptical-oblong, thick, obtuse at the ends, 1.5 mm long, the connectives and the body broad, thick, the free margin of the body protruding, thickly pyramidal, pubescent, connate to the base of the column; **column** terete, 1.5 mm long, the anther apical, the stigma ventral.

ECUADOR: **Pichincha**: El Jordan, north of San Pedro Vicente Maldonado, west of Los Cedros, alt. 400 m, 2002, *A. Hirtz 8432* (Holotype of *L. thoracica*: MO).
Carchi: Río Blanco, along new road between Carolina and Chical, alt. 1800 m, 10 Apr. 2007, *A. Hirtz, L. Grobler et al. 9210* (MO), C. Luer illustr. 21269.

With its fishbone raceme, this small species is superficially similar to *Lepanthes cassidea* Lindl. The raceme is crowded with long pedicels in two opposite ranks, and borne by peduncles much shorter than the needle-like leaves. The sepals, petals, and the blades of the lip are similar to those of *L. cassidea*, but the free margin of broad body is thickly protuberant like a pubescent pyramid.

Lepanthes thysanota Luer & Hirtz, sp. nov.

Ety.: From the Greek *thysanotos*, "fringed," referring to the margins of the lateral sepals.

Planta mediocris prolificans, racemo laxe elongato, sepalo dorsali triangulari integro, et sepalis lateralibus late ovatis uninervis fimbriatis brevicaudatis distinguitur.

Plant medium in size, epiphytic, prolific; roots slender. Ramicauls comparatively stout, erect to suberect, 8 cm long below, 2-4 cm long above, enclosed by 7-8, ribbed, minutely ciliate, lepanthiform sheaths with minimally dilated ostia. **Leaf** erect, narrowly elliptical, subacute to rounded at the tip, 2.5-3 cm long with a petiole 2-3 mm long, 5-8 mm wide, cuneate below to the base. **Inflorescence** an erect, arching, lax, secund, successively many-flowered raceme to 17 cm or more long, with the peduncle 3-6 cm long, from near the apex of the ramicaul; floral bracts 2 mm long; pedicels 1.5 mm long; ovary 1 mm long; **sepals** membranous, dark yellow, suffused with brown, carinate, the dorsal sepal triangular, subacute, shortly acuminate, 5 mm long, 4.5 mm wide, 3-veined, lightly connate to the lateral sepals for 2 mm, the lateral sepals broadly ovate, oblique, 4 mm long, 5 mm wide, 1-veined, concave and connate 1.5 mm below the column, with the margins fimbriate, with an acute, 1 mm long tail at the obtuse apices; **petals** dark yellow, microscopically pubescent, transversely bilobed, oblong, 0.9 mm long, 2 mm wide, with rounded ends, the lobes oblong, the upper lobe slightly longer than the lower lobe; **lip** dark yellow, glabrous, bilaminate, the blades elliptical-oblong, obtuse at the base, acute at the tip, 2 mm long, the connectives and the body broad, with a minute, ciliate appendix, connate to the base of the column; **column** terete, 1.5 mm long, the anther dorsal, the stigma ventral.

ECUADOR: **Morona-Santiago**: collected between Zamora and San Luis, alt. 1500 m, flowered in cultivation at Ecuagenera, Gualaceo, 10 Nov. 2001, *A, Hirtz 7834* (Holotype of *L. thysanota*: MO), C, Luer illustr. 21287.

This species is distinct with superposed ramicauls that are relatively stout with longitudinally ribbed, lepanthiform sheaths, and a gradually lengthening, successsively many-flowered raceme. The dark yellow flowers are remarkable with an acuminate-tipped, smooth-margined dorsal sepal, and broad, single-veined lateral sepals with a fringed margin and short, pointed tails.

Lepanthes tortuosa Luer & Hirtz, sp. nov.

Ety.: From the Latin *tortuosus*, "twisted, complicated," referring to the margins of the leaves.

Species haec *L. calodictyonis* Hook. affinis, sed foliorum marginibus tortuosis, sepalis angustioribus, labelli lobo inferiore glabro integro sin processu et labello minutissime subcirculari non latiore quam columna differt.

Plant small, epiphytic, caespitose; roots slender. Ramicauls erect, slender, 10-28 mm long, enclosed by 5-6 microscopically ciliate-pubescent, lepanthiform sheaths. **Leaf** erect, thinly coriaceous, green with brown reticulation, elliptical, 12-18 mm long, 9-10 mm wide, the margins markedly sinuate, the apex rounded, the rounded base abruptly contracted into a petiole 1 mm long. **Inflorescence** a congested, distichous, successively several-flowered raceme up to 2 mm long, borne beside the leaf by a peduncle 2 mm long; floral bracts 0.75 mm long; pedicels 1.75-2 mm long; ovary 1.5 mm long; **sepals** light yellow, reflexed, acute, carinate, the dorsal sepal obovate, convex, reflexed 90°, 2.5 mm long, 1 mm wide, 3-veined, free from the lateral sepals, the lateral sepals narrowly ovate, oblique, 2.5 mm long, 0.75 mm wide, barely connate, 2-veined; **petals** red, glabrous, transversely bilobed, 0.5 mm long, 1.75 mm wide, the upper lobe acute with the apex contracted into an erect, filamentous process 1 mm long, the lower lobe obliquely subcircular with the end rounded, 0.75 mm long, 0,5 mm wide; **lip** red, glabrous, subcircular, 0.4 mm long, 0.4 mm wide, the apex rounded, the base rounded, connate to the base of the column; **column** red, subclavate, 1 mm long, the anther apical, the stigma subapical.

ECUADOR: **Pichinha**: near Pacto, alt. 1200 m, flowered in cultivation in Quito, Oct. 2006, *A. Hirtz 9174* (Holotype of *L. tortuosa*: MO), C. Luer illustr. 21273.

This little species is allied to *Lepanthes calodictyon* Hook., but distinguished easily by an erect, elliptical, reticulated leaf with a markedly undulate-ruffled or sinuate margin, and a short raceme of a successive, spindly flowers. The dorsal sepal is acutely reflexed with the exposed column pointing forward. The upper lobes of the petals are contracted into an erect pair of slender, parallel processes. The lower lobe is short and rounded without a process. The lip is minute and discoid, hidden beneath the column.

Lepanthes velosa Luer & Hirtz, sp. nov.

Ety.: From the Latin *velosus*, "with veil," in allusion to the remarkable development of the lip.

Species haec *Lepanthidis deformis* Luer & Hirtz affinis, sed pedicilis longioribus, sepalis lateralibus acutis et appendice oblongo multimajore differt.

Plant small, epiphytic, caespitose; roots slender. Ramicauls slender, erect, 3.5-4 cm long, enclosed by 6-7 blackish, tightly fitting, shortly pubescent-scabrous, lepanthiform sheaths. **Leaf** erect, coriaceous, elliptical, 3-3.5 cm long, 1.5-2 cm wide, the apex obtuse, shortly acuminate, the base broadly cuneate, contracted into a petiole 1.5-2 mm long. **Inflorescence** a very dense, distichous, successively flowered raceme up to 10 mm long, borne beneath the leaf by a filiform peduncle 12-15 mm long; floral bracts slender, 1 mm long; pedicel 3-4 mm long; ovary 3 mm long; **sepals** light yellow, glabrous, carinate, the dorsal sepal ovate, acute, 3.5 mm long, 2.25 mm wide, 3-veined. connate to the lateral sepals for 0.5 mm, the lateral sepals connate 2 mm into a bifid lamina, 3.75 mm long, 3 mm long, 4-veined; **petals** yellow with a red border, transversely bilobed, 1.5 mm long, 4.5 mm wide, 1-veined, the upper lobe oblong with rounded end, 2.5 mm long, 1.5 wide, the lower lobe minutely ciliate, narrowly triangular, 2 mm long, 1 mm wide; **lip** rose, bilaminate, the blades thickly

verruculose, cellular-papillose at the base, adherent beyond the base into a membranous, veil-like lamina that is longitudinally microscopically vein-like, 1.5 mm long, 0.6 mm wide covering the column, the apical margin erose, the connectives narrowly oblong, connate into a narrow body with the base of the column, the sinus occupied by an oblong appendix, 1 mm long, shallowly channeled, pubescent, with an ovoid, minutely pubescent gland at the tip; **column** terete, 1.25 mm long, bent to one side (the left in this specimen), the dorsal anther bed and stigma protruding beyond the veil.

ECUADOR: **Pichincha**: between Androas and Río Guayallababa, west of San Miguel de los Bancos, alt. 800 m, March 2004, *A. Hirtz, X. Hirtz & H. Simbaña 8693* (Holotype of *L. velosa*), C. Luer illustr. 21304.

With its bent column behind a membranous, veil-like lip, this species is closely related to *Lepanthes deformis* Luer & Hirtz, previously unique in the genus. Otherwise, *L. velosa* is not distinct except for a densely distichous, long-pedicellate raceme. The most unusual blades of the lip are borne by narrow connectives that rise to either side of the shaft of the column. The bases of blades that meet above the column are thick and verruculose. Abruptly beyond these thick bases, the blades adhere and descend as an oblong, longitudinally vein-like, membranous veil over the column. The column bends to expose the anther bed and stigma beyond the margin of the veil. Also behind the veil is a long, oblong appendix with a pubescent, apical gland.

Lepanthes zanklopetala Luer & Hirtz, sp, nov.

Ety.: From the Greek *zanklon*, "sickle," and *petalon*, "petal," referring to the lower lobe of the petals.

Species haec *Lepanthidis ankistrae* Luer & Dressler affinis, sed habitu minore, sepalo dorsali deflexo lateribus recurvis, petalorum lobo superiore oblongo oblique, lobo mediano parvo anguste oblongo, lobo inferiore minore subfalcato ad apicem rotundo sed ad marginem oblique falcato, labelli laminis ellipticis infra medium connatis, et appendice simile distimguitur.

Plant small, epiphytic, caespitose; roots slender. Ramicauls very slender, erect, 3-4.5 cm long, enclosed by 8-12 closely fitting, microscopically pubescent, lepanthiform sheaths with oblique, acuminate ostia. **Leaf** erect, thin, softly coriaceous, ovate, acute, acuminate, 1.5-3 cm long, 1 cm wide, the base rounded, contracted into a petiole ca. 1 mm long. **Inflorescence** a very congested, successively several-flowered raceme 3 mm or more long, borne on top of the leaf by a filiform peduncle ca. 12 mm long; floral bracts 1 mm long; pedicels 3.5 mm long; ovary 1.5 mm long; **sepals** light yellow, suffused with purple toward the base, glabrous, the dorsal sepal broadly elliptical, obtuse, slightly acuminate, 3 mm long, 2 mm wide, deflexed with sides recurved, connate to the lateral sepals for 0.5 mm, the lateral sepals connate 1.3 mm into a broadly ovate, bifid lamina, 2.5 mm long, 2.6 mm wide, with the apices acute; **petals** dark yellow, microscopically pubescent, transversely trilobed, 0.75 mm long, 2.5 mm wide, the upper lobe oblong, oblique, truncate with the margin minutely erose, 1.5 mm long, 0.75 mm wide, the middle lobe narrowly oblong, 0.5 mm long, the lower lobe subfalcate, oblique, 1 mm long, 0.5 mm wide, the apex rounded with inner margin minutely uncinate; **lip** purple, bilaminate, the blades elliptical, thin, flat, with rounded ends, 1.2 mm long, the inner halves adherent medially over the column, microscopically pubescent, the connectives broadly cuneate, the body connate to the column above the base, the sinus obtuse with a well-developed, oblong, concave, ciliate appendix with a ciliate apical gland; **column** purple, stout, 2 mm long, with the anther dorsal and the stigma ventral.

ECUADOR: **Pichincha**: El Jordan, north of San Pedro Vicente Maldonado, west of Los Cedros, alt. 400 m, 2002, *A. Hirtz 8433* (Holotype of *L. zanklopetala*: MO), C. Luer illustr. 21282.

This species from lowland western Ecuador is related to *Lepanthes ankistra* Luer & Dressler from western Panama. From the latter it differs in a smaller habit with a deflexed dorsal sepal with recurved sides. The petals of both species have a narrow middle lobe, a more or less truncate upper lobe, and a more or less falcate lower lobe. The outer margin of the lower lobes of the petals of *L. zanklopetala* are rounded instead of broadly uncinate, but the inner margins of both species are minutely uncinate. The blades of the lip of *L. zanklopetala* are only semiconnate, but the appendices of the two species are basically similar.

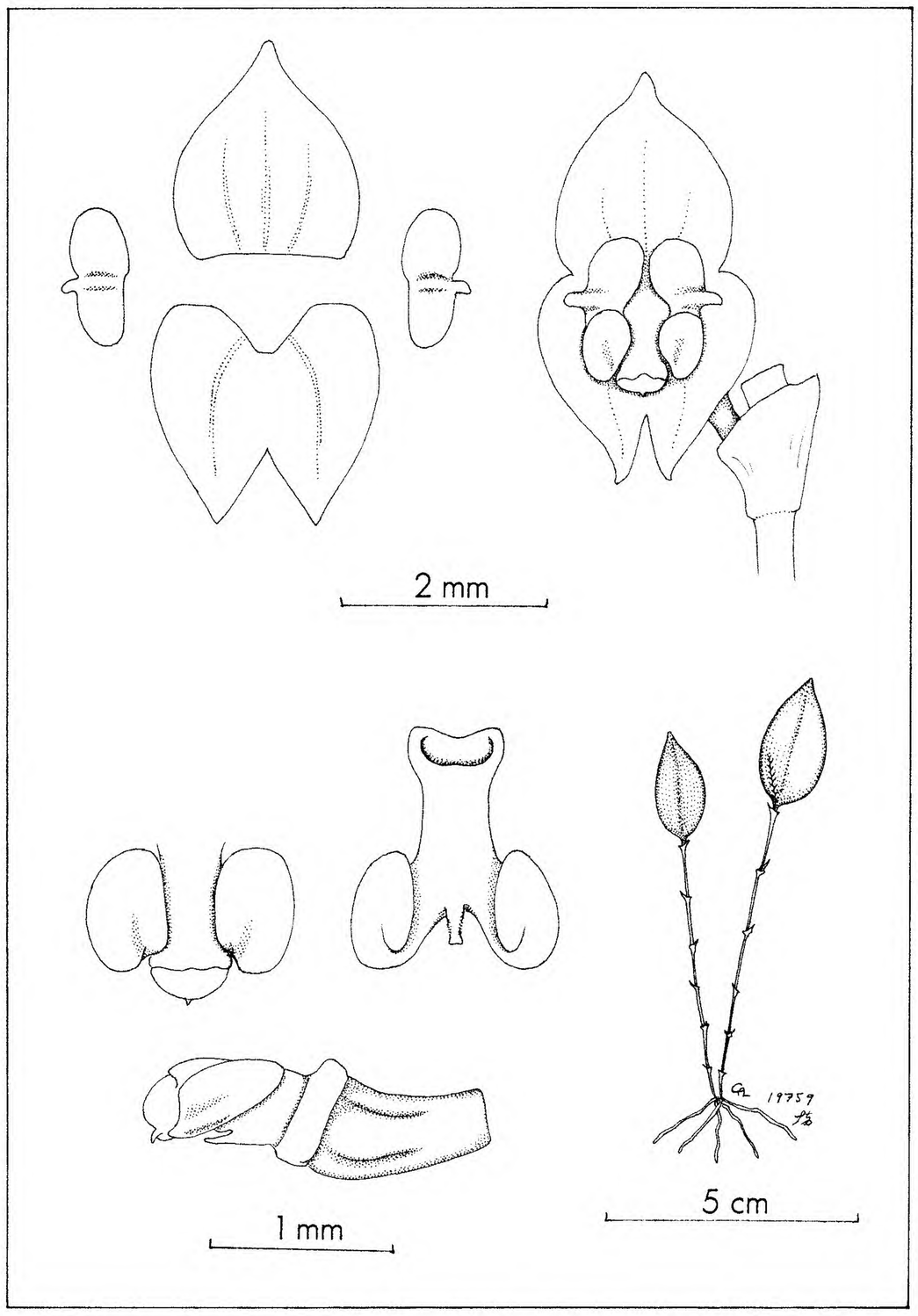

Fig. 1. Lepnthes bipollicaris

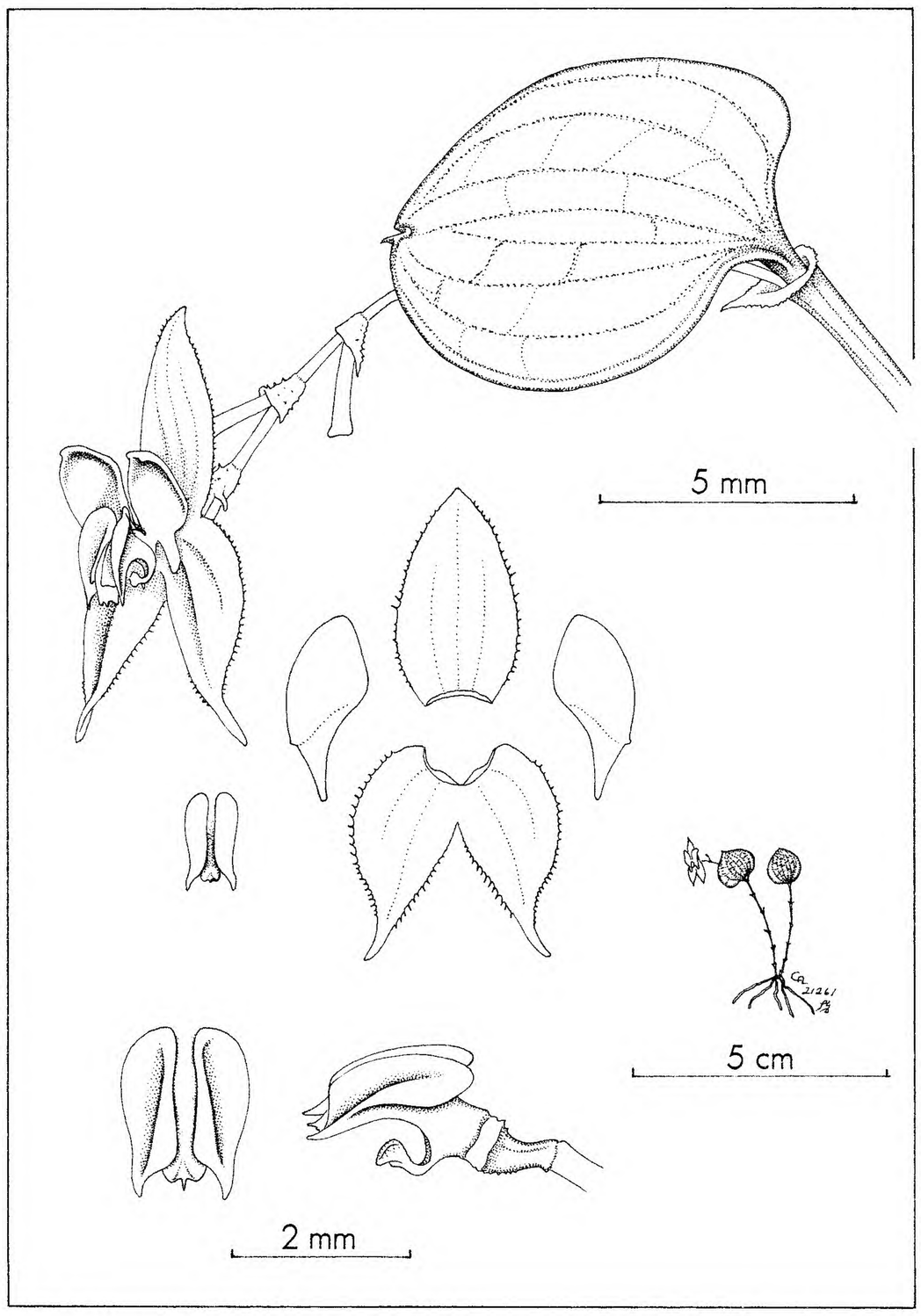

Fig. 2. Lepanthes calophlebia

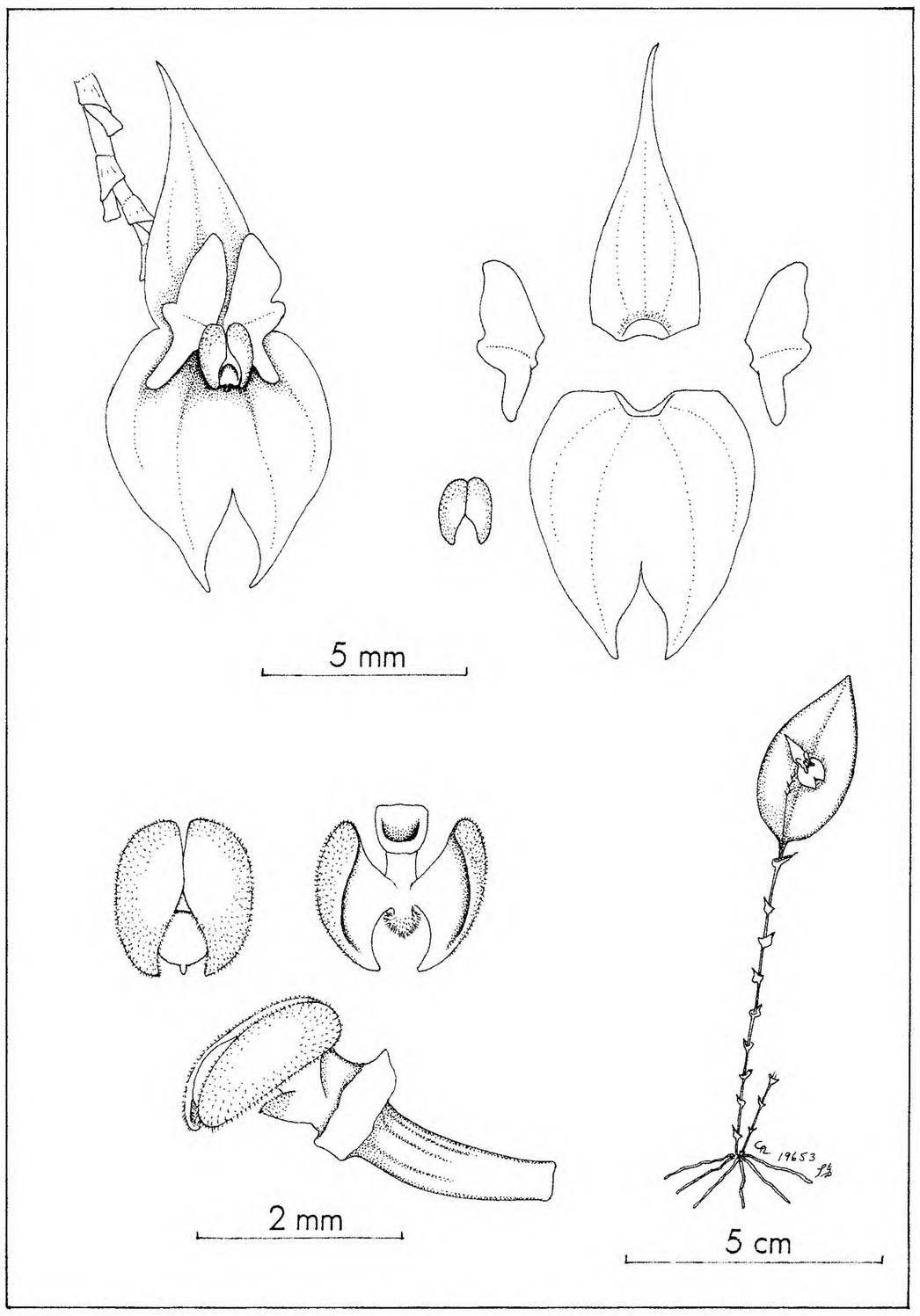

Fig. 3. Lepanthes chinapintae

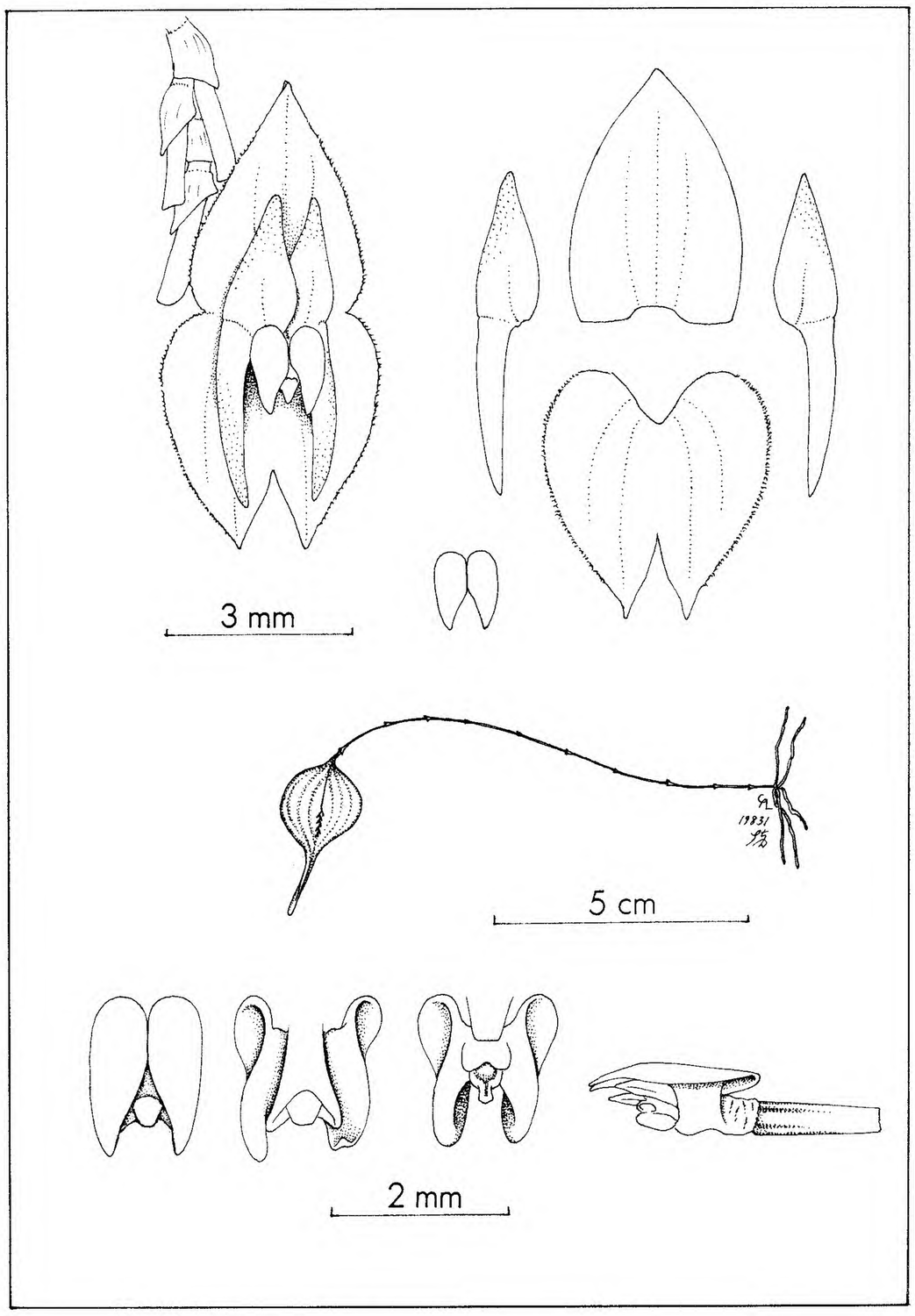

Fig. 4. Lepanthes cirrata

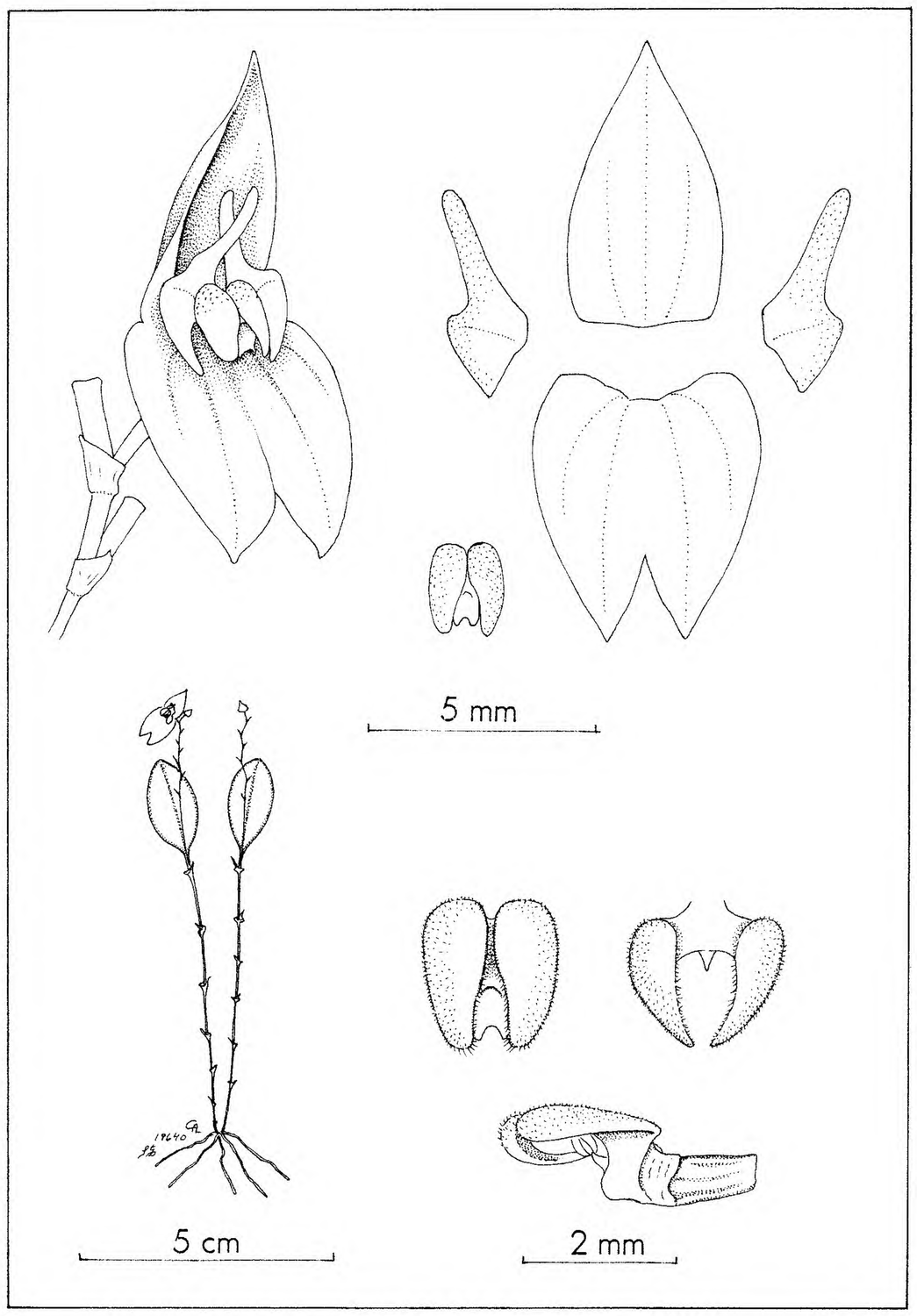

Fig. 5. Lepanthes crucis

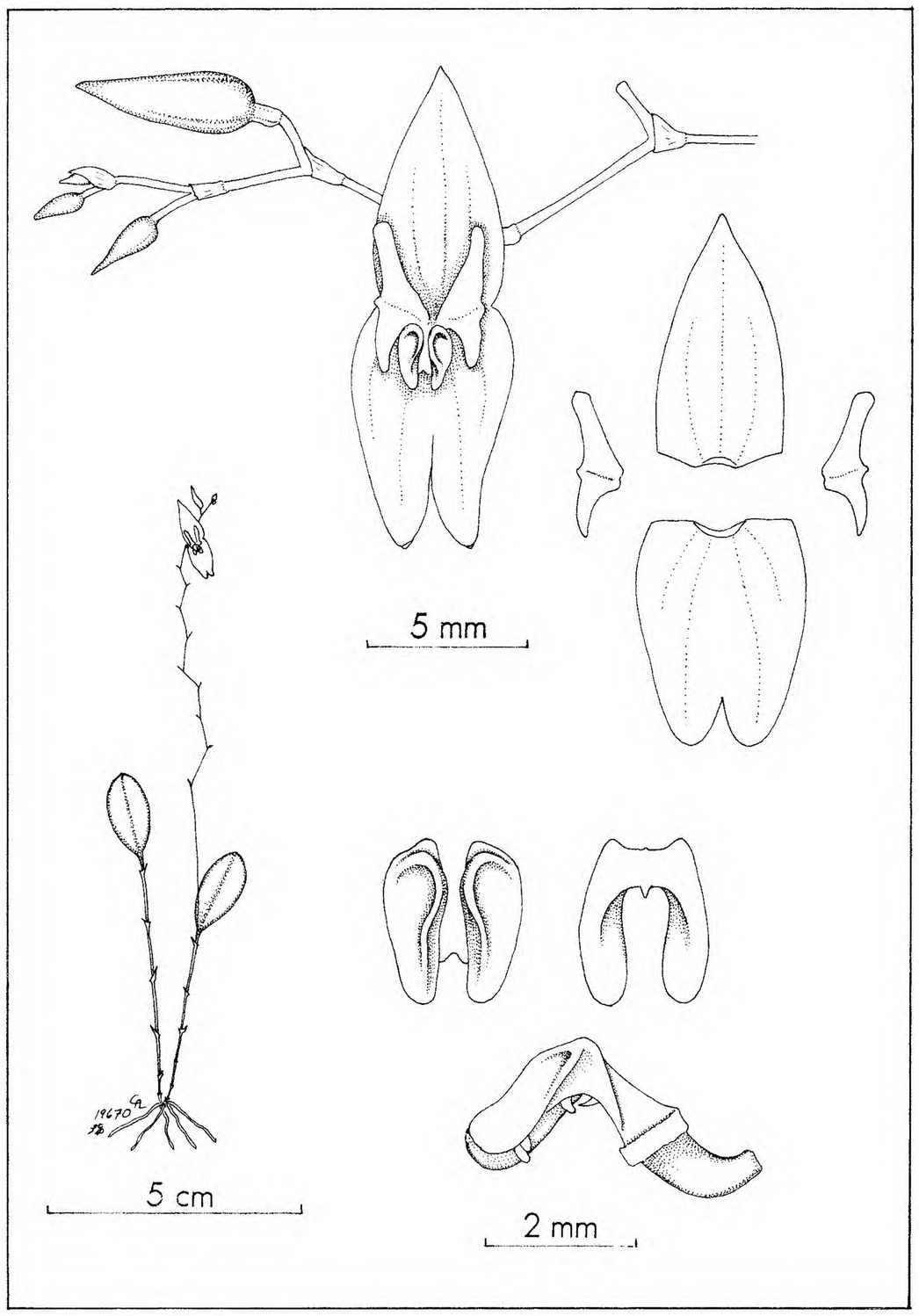

Fig. 6. Lepanthes laxiflora

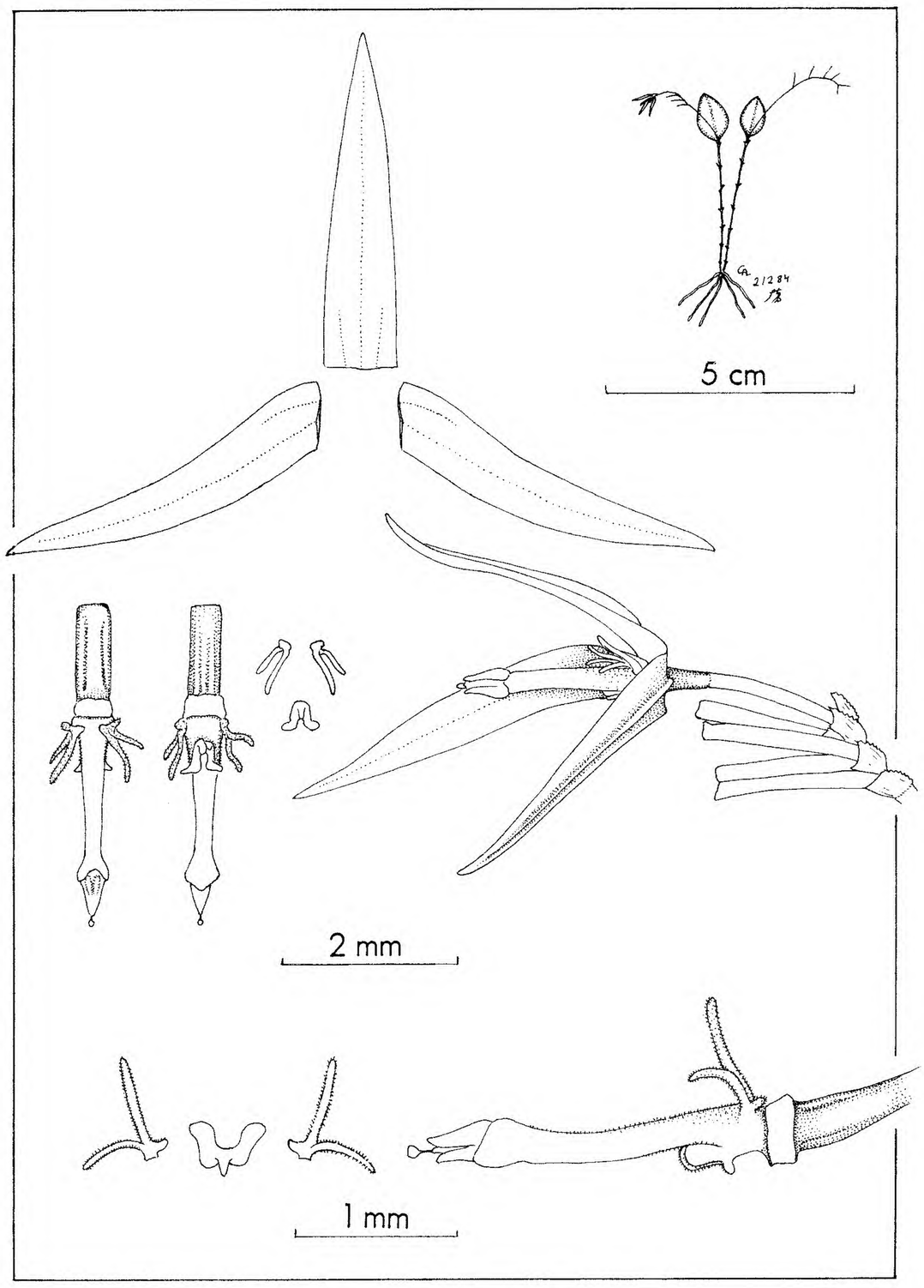

Fig. 7. Lepanthes pelorostele

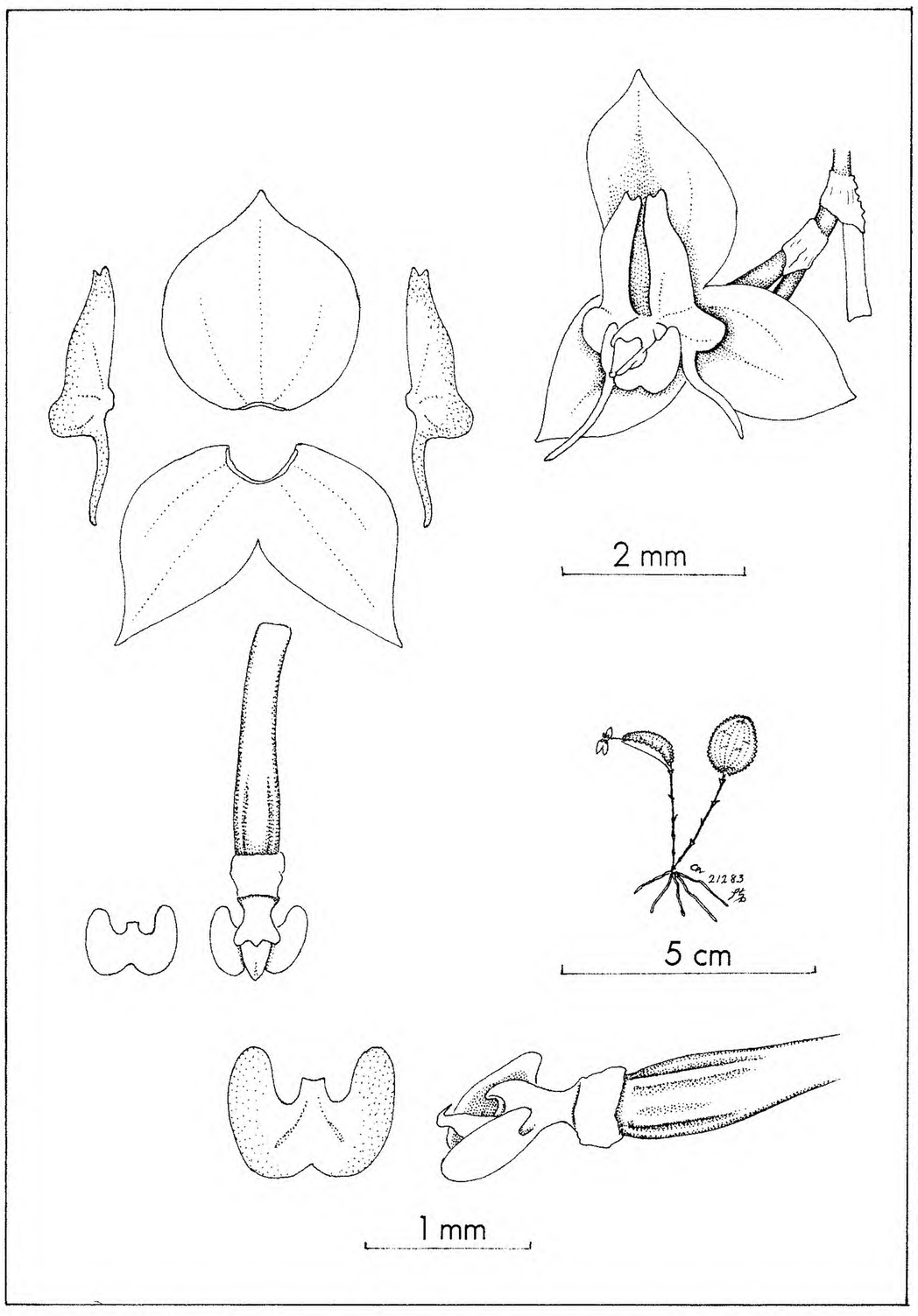

Fig. 8. Lepanthes pretiosa

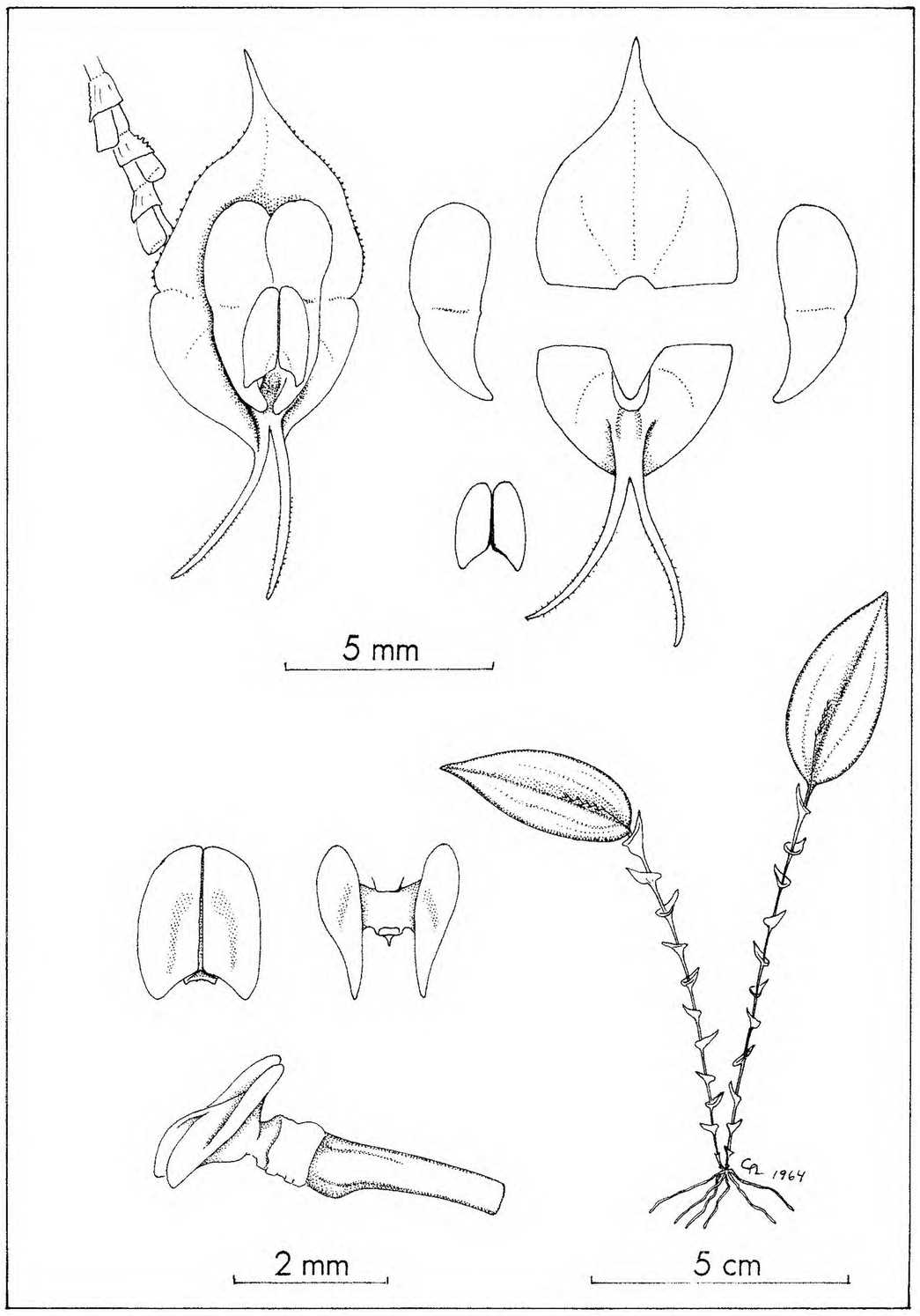

Fig. 9. Lepanthes quasimodo

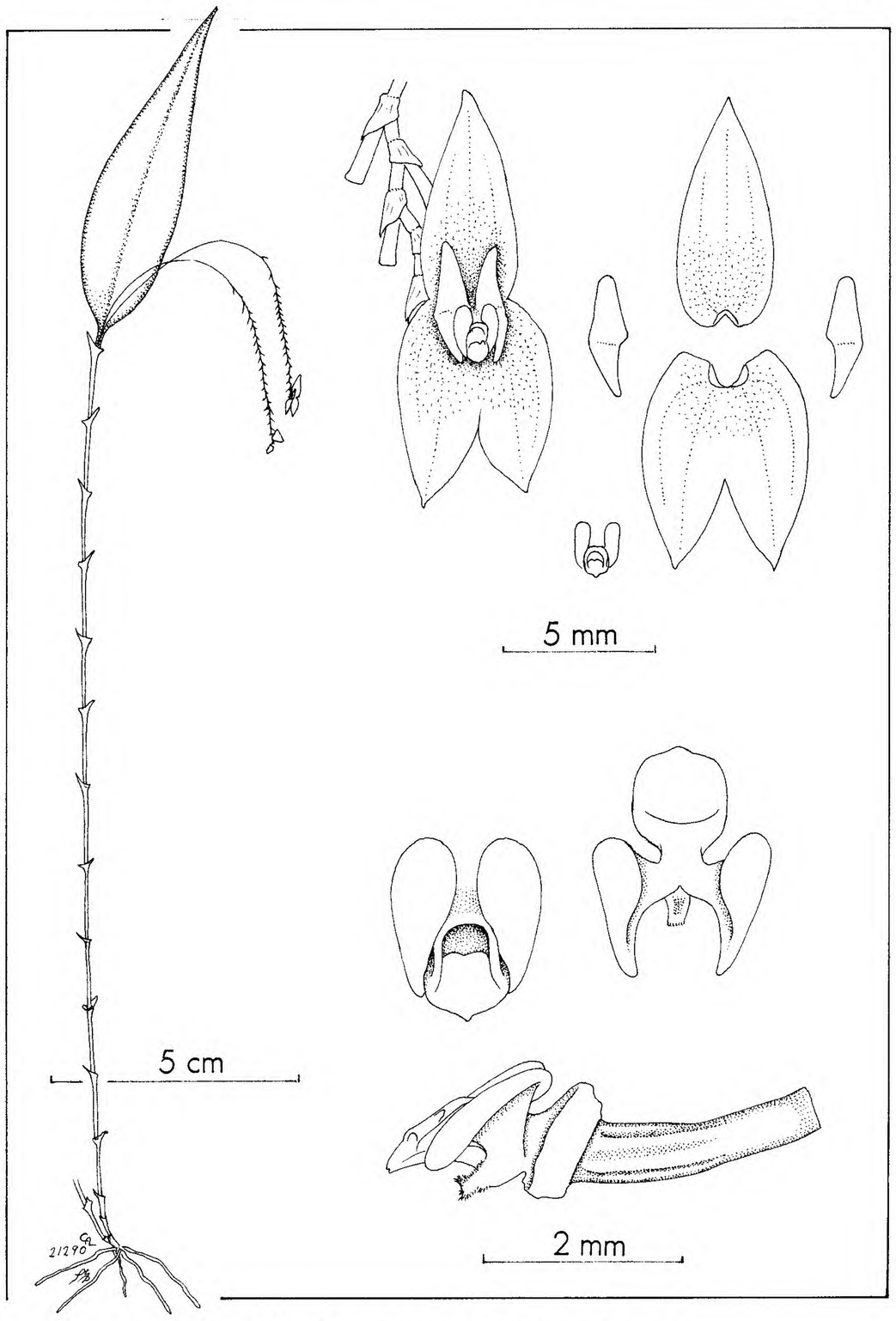

Fig. 10. Lepanthes rubrolineata

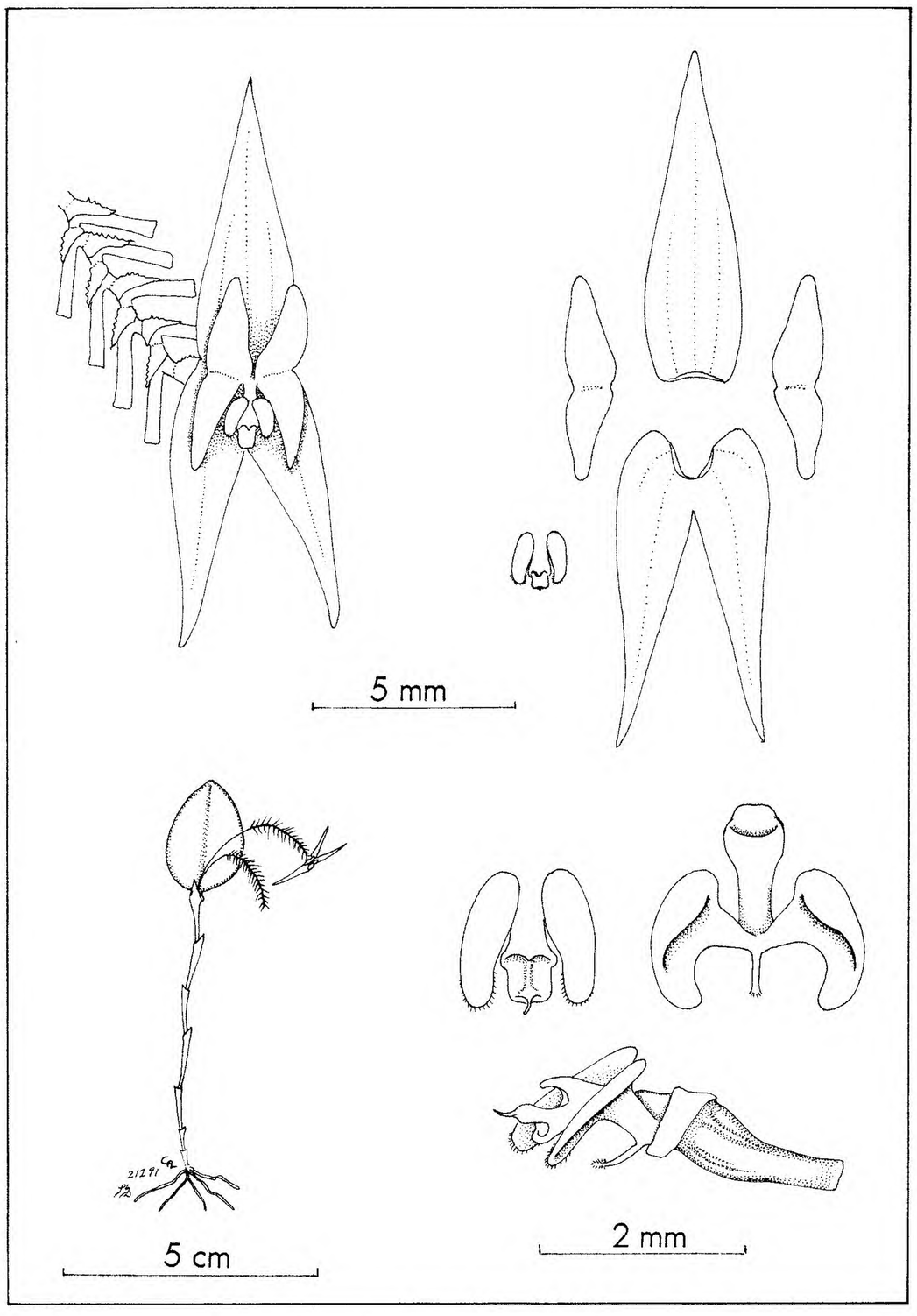

Fig. 11. Lepanthes stellaris

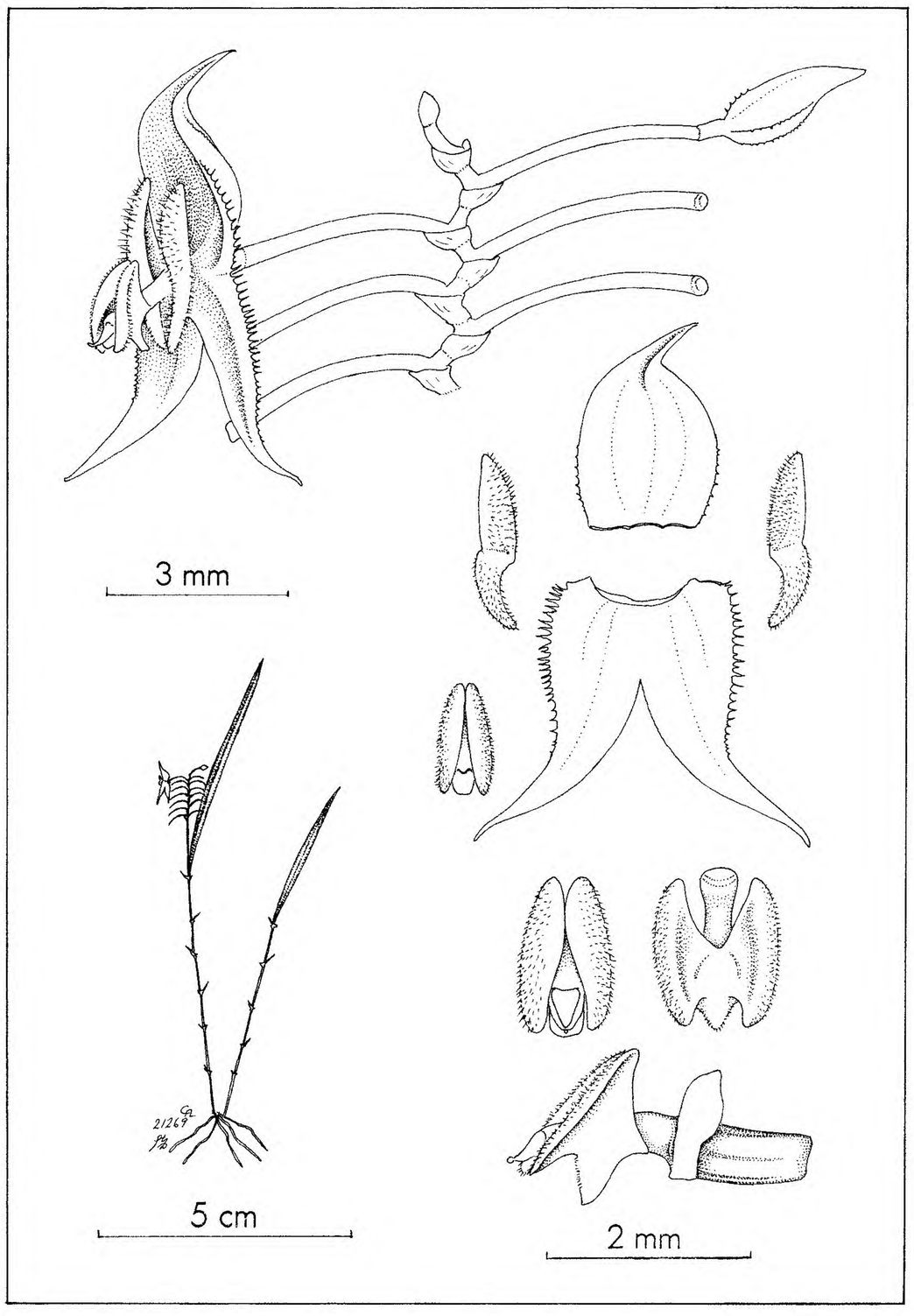

Fig. 12. Lepanthes thoracica

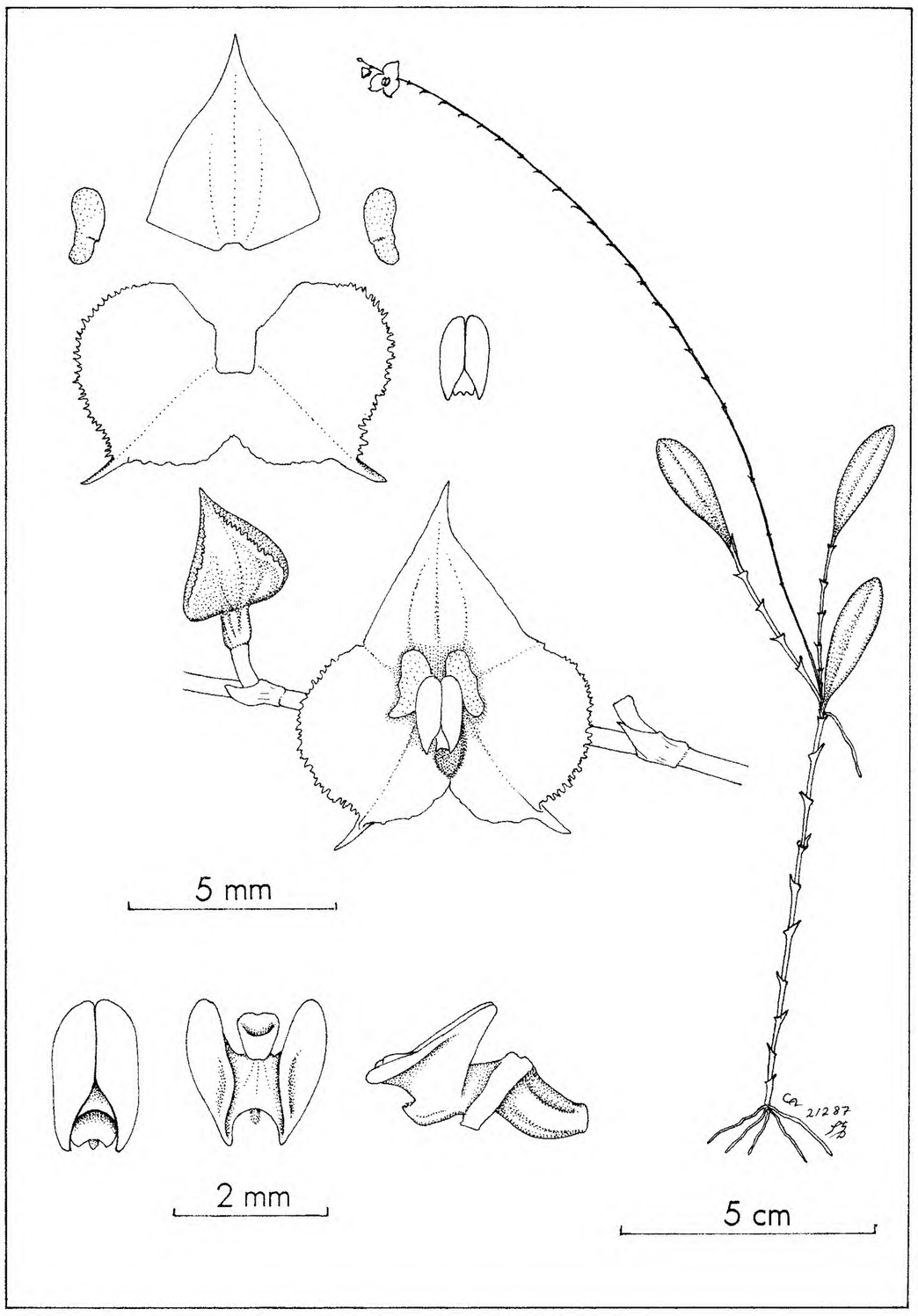

Fig. 13. Lepanthes thysanota

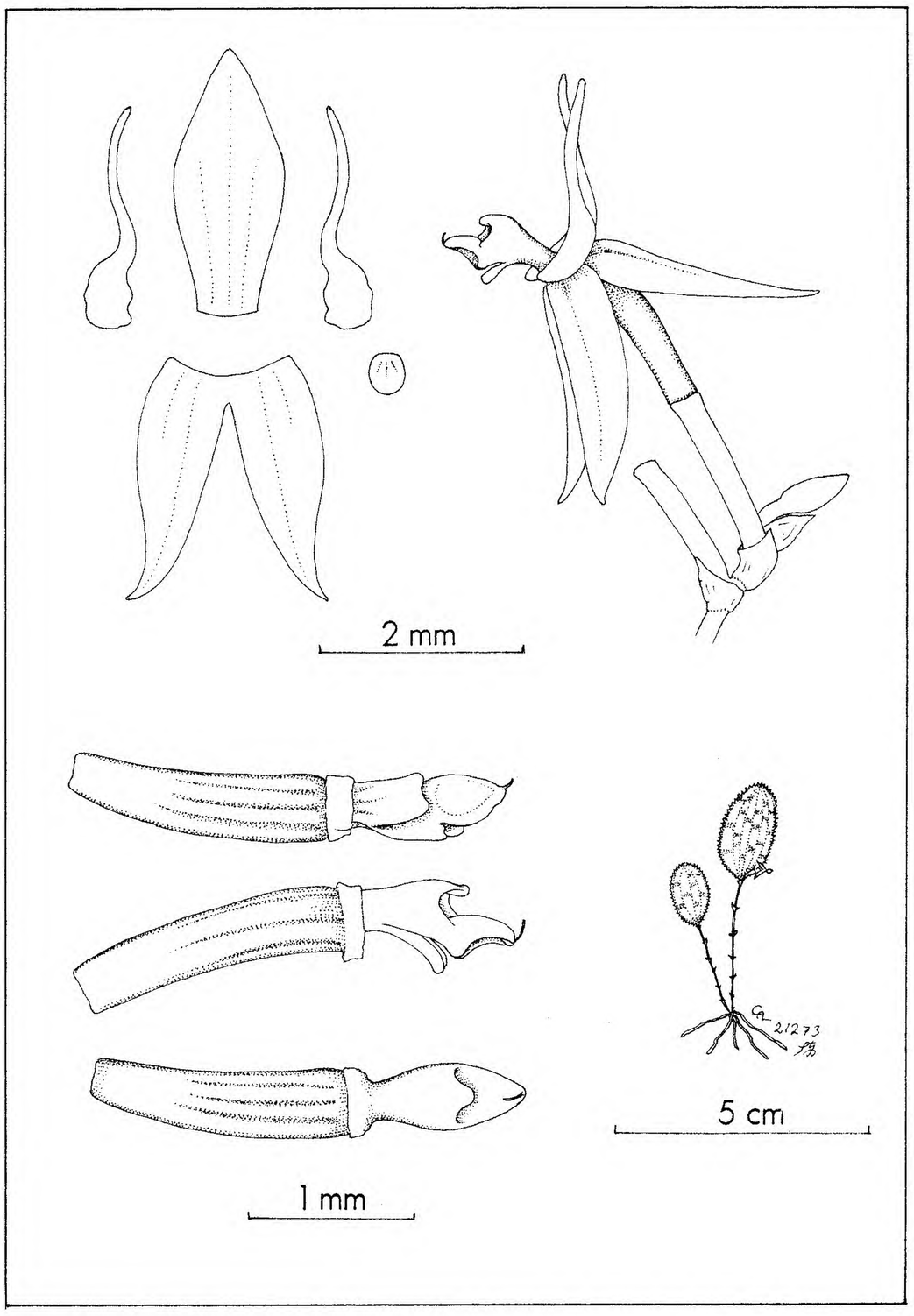

Fig. 14. Lepanthes tortuosa

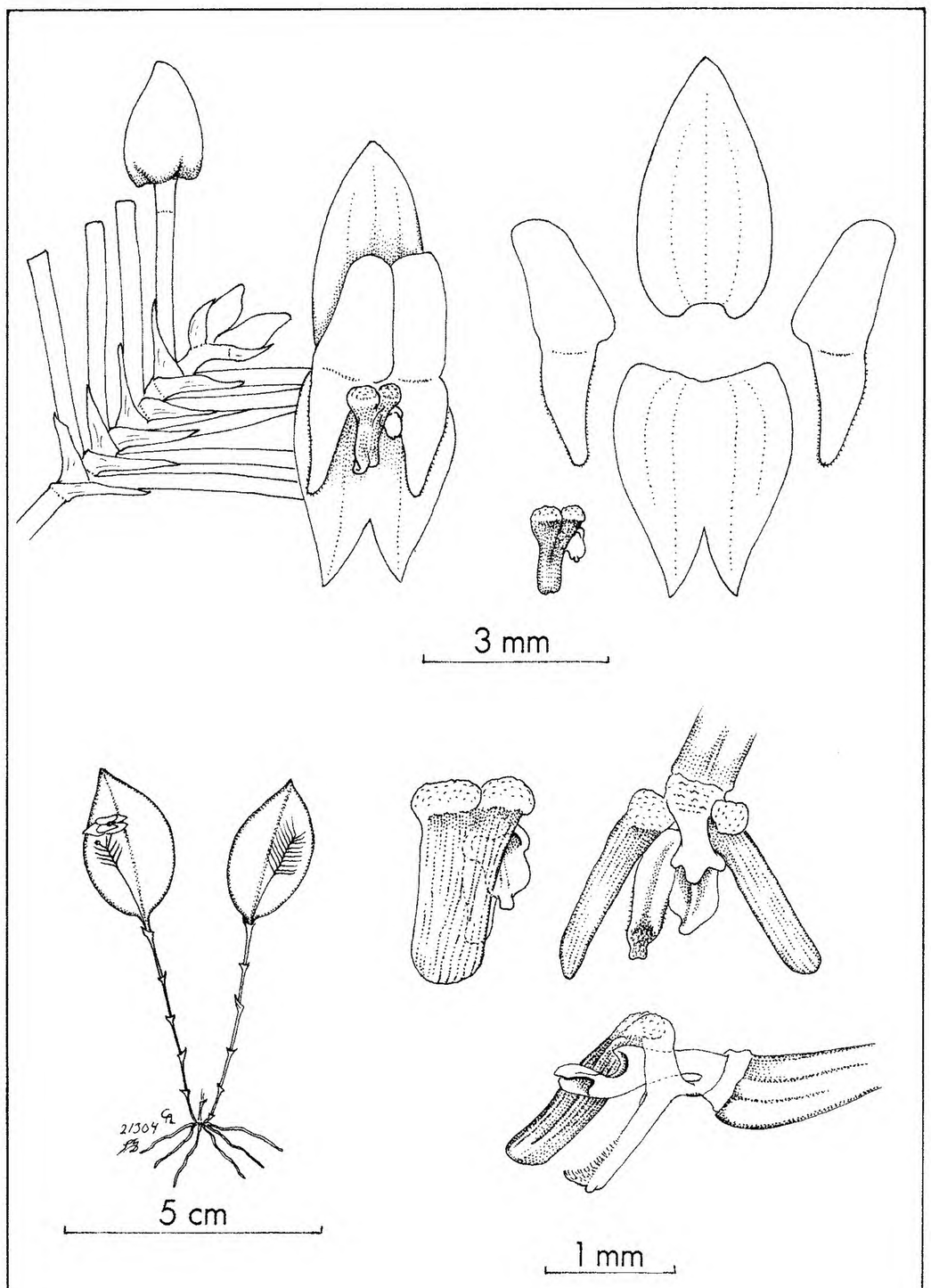

Fig. 15. Lepanthes velosa

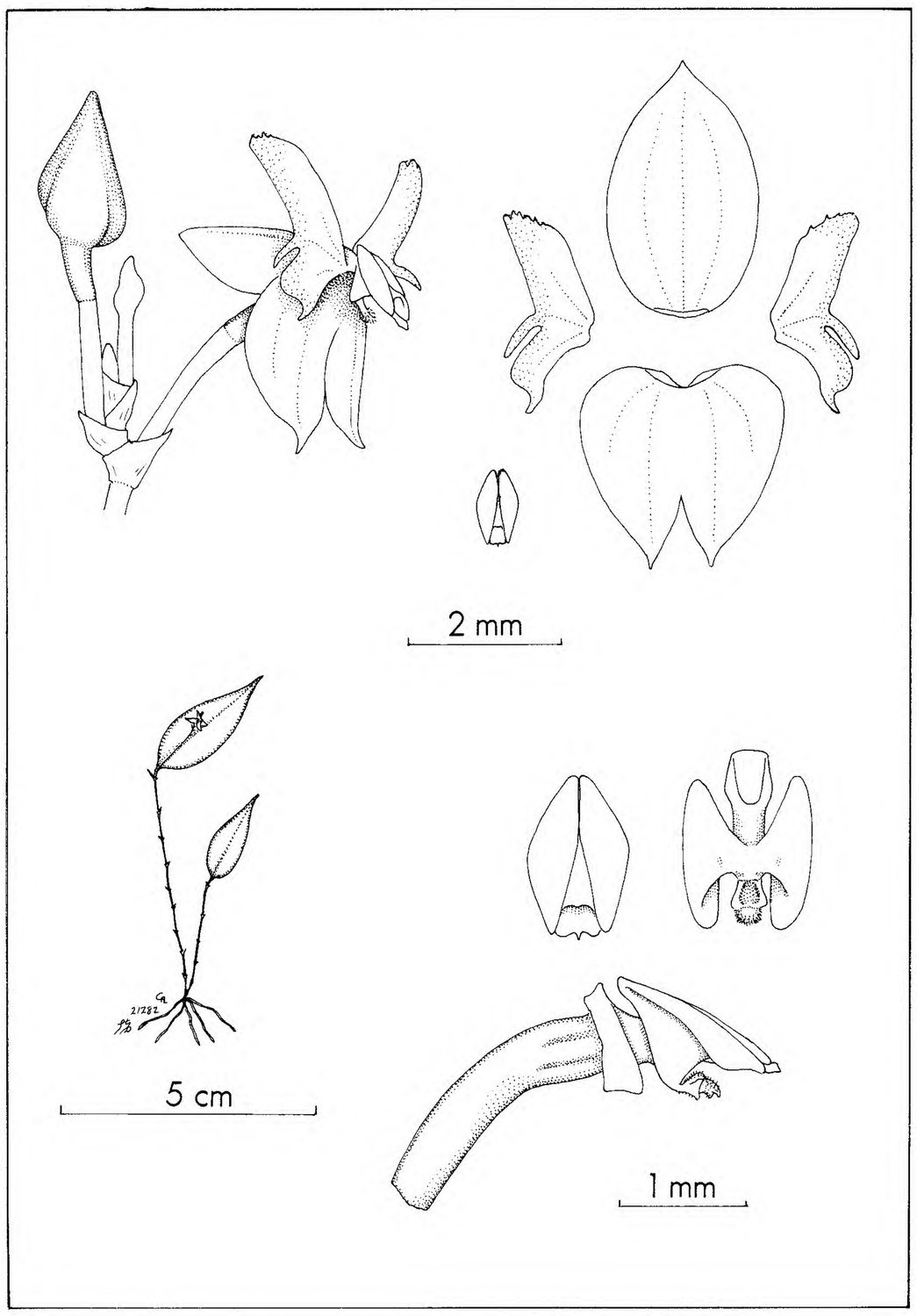

Fig. 16. Lepanthes zanklopetala

ADDENDA: MISCELLANEOUS NEW COMBINATIONS

New Combinations

The following new combinations need to be made:

Acianthera murex (Rchb.f.) Luer, comb. nov.
Bas.: *Pleurothallis murex* Rchb.f., Flora 48: 276, 1865.

Acianthera parahybunensis (Barb.Rodr.) Luer, comb. nov.
Bas.: *Lepanthes parahybunensis* Barb.Rodr., Gen. Sp. Orch. Nov. 2: 57, 1882.

Acronia truncata (Lindl.) Luer, comb. nov.
Bas.: *Pleurothallis truncata* Lindl., Comp. Bot. Mag. 2: 355, 1836.

Oreophilus macroticus (Luer & Dalström) Luer, comb. nov.
Bas.: *Lepanthes macrotica* Luer & Dalström, Monogr. Syst. Bot. Missouri Bot. Gard. 61: Addenda 3, 1996.

Oreophilus montis-rotundi (P.Ortiz) Luer, comb. nov.
Bas.: *Lepanthes montis-rotundi* P.Ortiz, Orquideología 20: 318, 1997.

The genus *Panmorphia* Luer, as proposed in Icones 28, contains species of various shapes and sizes, as reflected in its name. After further reviewing hundreds of illustrations of Brazilian species, it becomes apparent that *Panmorphia* grades into *Anathallis* Barb.Rodr. As understood today, a general description of *Anathallis* is broadly inclusive: the habit varies from caespitose to repent; the ramicaul varies from much shorter than, to longer than the leaf; the leaf is conspicuously, to scarcely petiolate, never sessile; the inflorescence is lateral, never terminal; the sepals are more or less membranous without keels, free, but the lateral sepals are occasionally partially to completely connate; the petals are longer than wide, glabrous to ciliate or pubescent, but neither lacerate nor lobed; the lip is more or less oblong, often with lateral lobes, the disc is often channeled, the base is often delicately bilobulate, and it is delicately hinged to the column-foot; the column is semiterete, often with marginal wings, with the apex hooded and often toothed or lacerate, and the anther is always ventral.

Some of the above criteria also apply to other genera, but each is distinguished by an additional morphological feature, or a combination of features. *Pabstiella* Brieger & Senghas differs in more or less fleshy sepals with keels, with the lateral sepals connate. The lips are usually thick with a pair of calli, similar to those of the lips of *Acianthera* Schweidw., and without membranous, basal lobules.

Species not already transferred to *Anathallis* follow.

Anathallis angulosa (Luer & Hirtz) Luer, comb. nov.
Bas.: *Pleurothallis angulosa* Luer & Hirtz, Lindleyana 11: 146, 1996.
Syn.: *Panmorphia angulosa* (Luer & Hirtz) Luer, Monogr. Syst. Bot. Missouri Bot. Gard. 105: 146, 2006.

Anathallis articulata (Lindl.) Luer & Toscano, comb. nov.
Bas.: *Pleurothallis articulata* Lindl., Edwards's Bot. Reg. 28(Misc.): 83, 1842.

Anathallis burzlaffiana (Luer & Sijm) Luer, comb. nov.
Bas.: *Pleurothallis burzlaffiana* Luer & Sijm, Rev. Soc. Boliv. Bot. 3: 43, 2001.
Syn.: *Panmorphia burzlaffiana* (Luer & Sijm) Luer, Monogr. Syst. Bot. Missouri Bot. Gard. 105: 149, 2006.

Anathallis caudatipetala (C.Schweinf.) Luer, comb. nov.
Bas.: *Pleurothallis caudatipetala* C.Schweinf. Bot. Mus. Leafl. 10: 175, 1942.
Syn.: *Panmorphia caudatipetala* (C.Schweinf.) Luer, Monogr. Syst. Bot. Missouri Bot. Gard. 105: 150, 2006.

Anathallis duplooyi (Luer & Sayers) Luer, comb. nov.
Bas.: *Pleurothallis duplooyi* Luer & Sayers. Rev. Soc. Boliv. Bot. 3: 48, 2001.
Syn.: *Panmorphia duplooyi* (Luer & Sayers) Luer, Monogr. Syst. Bot. Missouri Bot. Gard. 105: 153, 2006.

Anathallis escalarensis (Carnevali & Luer) Luer, comb. nov.
Bas.: *Pleurothallis escalarensis* Carnevali & Luer, Novon 13: 414, 2003.
Syn.: *Panmorphia escalarensis* (Carnevali & Luer) Luer, Monogr. Syst. Bot. Missouri Bot. Gard. 105: 154, 2006.

Anathallis fastigiata (Luer & Toscano) Luer & Toscano, comb. nov.
Bas.: *Pleurothallis fastigiata* Luer & Toscano, Selbyana 23(2): 186, 2002.
Syn.: *Panmorphia fastigiata* (Luer & Toscano) Luer, Monogr. Syst. Bot. Missouri Bot. Gard. 105: 177, 2006.

Anathallis fractiflexa (Ames & C.Schweinf.) Luer, comb. nov.
Bas.: *Pleurothallis fractiflexa* Ames & C.Schweinf., Sched. Orch. 10: 26, 1930.
Syn.: *Anathallis corynophora* (Luer) Pridgeon & M.W.Chase, Lindleyana 16: 248, 2001.
Syn.: *Panmorphia fractiflexa* (Ames & C.Schweinf.) Luer, Monogr. Syst. Bot. Missouri Bot. Gard. 105: 154, 2006.

Anathallis francesiana (Luer) Luer, comb. nov.
Bas.: *Pleurothallis francesiana* Luer, Rev. Soc. Boliv. Bot. 4: 14, 2003.
Syn.: *Panmorphia francesiana* (Luer) Luer, Monogr. Syst. Bot. Missouri Bot. Gard. 105: 155, 2006.

Anathallis funerea (Barb.Rodr.) Luer, comb. nov.
Bas.: *Lepanthes funerea* Barb.Rodr., Vellosia, ed. 2, 1: 118, 1891.
Syn.: *Panmorphia funerea* (Barb.Rodr.) Luer, Monogr. Syst. Bot. Missouri Bot. Gard. 105: 156, 2006.

Anathallis grayumii (Luer) Luer, comb. nov.
Bas.: *Pleurothallis grayumii* Luer, Lindleyana 11: 78, 1996.
Syn.: *Panmorphia grayumii* (Luer) Luer, Monogr. Syst. Bot. Missouri Bot. Gard. 105: 157, 2006.

Anathallis guimaraensii (Brade) Luer & Toscano, comb. nov.
Bas.: *Pleurothallis guimaraensii* Brade, Orquidea (Rio de Janeiro) 6: 12, 1943, as "guimaraensii."
Syn.: *Acianthera guimaraensii* (Brade) F.Barros, Bradea 8(43): 294, 2002.

Anathallis herpethophyton (Schltr.) Luer, comb. nov.
Bas.: *Pleurothallis herpethophyton* Schltr., Repert. Spec. Nov. Regni Veg. 27: 52, 1929.
Syn.: *Panmorphia herpethophyton* (Schltr.) Luer, Monogr. Syst. Bot. Missouri Bot. Gard. 105: 158, 2006.

Anathallis holstii (Carnevali & I.Ramírez) Luer, comb. nov.
Bas.: *Pleurothallis holstii* Carnevali & I.Ramírez, Ernstia 39: 18, 1986.
Syn.: *Panmorphia holstii* (Carnevali & I.Ramírez) Luer, Monogr. Syst. Bot. Missouri Bot. Gard. 105: 159, 2006.

Anathallis humilis (C.Schweinf.) Luer, comb. nov.
Bas.: *Pleurothallis humilis* C.Schweinf., Fieldiana Bot. 28: 185, 1951.
Syn.: *Panmorphia humilis* (C.Schweinf.) Luer, Monogr. Syst. Bot. Missouri Bot. Gard. 105: 160, 2006.

Anathallis imberbis (Luer & Hirtz) Luer, comb. nov.
Bas.: *Pleurothallis imberbis* Luer & Hirtz, Lindleyana 11: 163, 1996.
Syn.: *Panmorphia imberbis* (Luer & Hirtz) Luer, Monogr. Syst. Bot. Missouri Bot. Gard. 105: 160, 2006.

Anathallis inversa (Luer & R.Vásquez) Luer, comb. nov.
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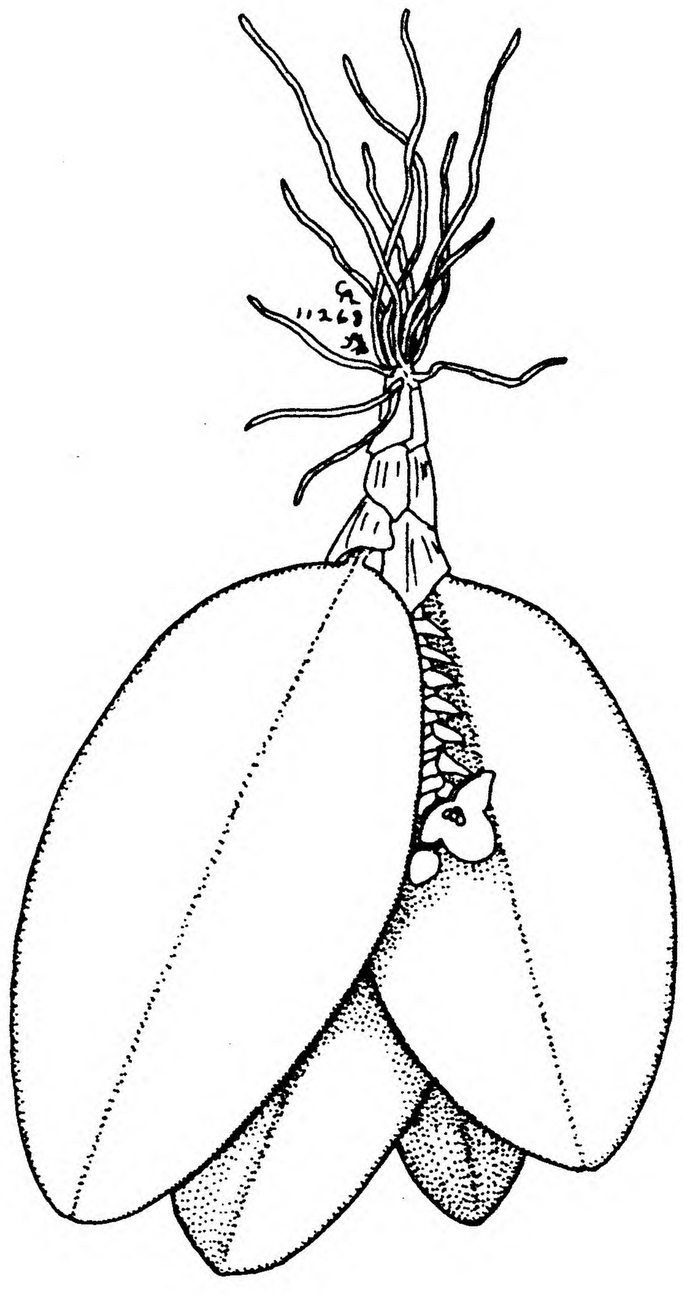
The deposition of the holotype was erroneously published as MO.



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nanegalensis *Part 4*, **169, Fig. 395.**
nepotula *Part 1*, **54, Fig. 72.**
neudeckeri *Part 2*, **127, Fig. 117.**
nexipous *Part 4*, *98, Fig. 346.*
nigrescens *Part 3*, **12, Fig. 218.**
nikiae *Part 3*, **40, Fig. 271.**
ninguida *Part 3*, **41, Fig. 272.**
nutans *Part 4*, **66, Fig. 327., 327a.**
nycterina *Part 1*, **18, Fig. 22.**
oblonga *Part 1*, **42, Fig. 50.** = as dodsonii;
Part 4, **170, Fig. 50a.**
oblongifolia *Part 4*, **171, Fig. 396., 396a.**
obtecta *Part 3*, **41, Fig. 273.**
ochreata = lindenii
odobenella *Part 4*, **67, Fig. 328.**
opercularis *Part 4*, **67, Fig. 329.**
ophioceps *Part 3*, **42, Fig. 274.**
ophioglossoides 32, 34, 100, 101.
opimipetala *Part 2*, **164, Fig. 176.**
orbiculata *Part 3*, **42, Fig. 275.**
oreada *Part 4*, **173, Fig. 397.**
orecta *Part 3*, **6, Fig. 210.**
ortegae *Part 1*, **54, Fig. 73.**
pachyphylla = purpurea
pachyphyta *Part 1*, **55, Fig. 74.**

Stelis pachystele = purpurea
pactensis *Part 3*, **6, Fig. 211.**
pan *Part 4*, **173, Fig. 398.**
panguiensis *Part 3*, **43, Fig. 276.**
paniculata *Part 2*, **165, Fig. 177.**
papillosa = atroviolacea
papulina *Part 2*, **165, Fig. 178.**
paradisicola *Part 3*, **43, Fig. 277.**
pardipes *Part 4*, **68, Fig. 330., 330a.**
parvipetala *Part 1*, **18, Fig. 23.**
patens *Part 1*, **19, Fig. 24.**
patinaria *Part 1*, **20, Fig. 25.**
patula = guatemalensis
paululа *Part 3*, **44, Fig. 278.**
pedanocaulon *Part 2*, **128, Fig. 118.**
peduncularis *Part 2*, **166, Fig. 179.**
pelycophora *Part 3*, **12, Fig. 219.**
pendulispica = ciliaris
petiolata *Part 2*, **196, Fig. 203.**
phaeantha = purpurea
phil-jesupii *Part 1*, **55, Fig. 75.**
physoglossa *Part 4*, **174, Fig. 399.**
picea *Part 3*, **7, Fig. 212.**
pichinchae = argentata
pilosa = pilosissima
pilosissima *Part 1*, **56, Fig. 76.**
pilostylis = discolor
piperina *Part 4*, **69, Fig. 331.**
pisinna *Part 2*, **166, Fig. 180.**
pixie *Part 2*, **167, Fig. 181.**
platypetala *Part 1*, **20, Fig. 26.**
platystachya *Part 4*, **175, Fig. 400.**
pleistantha = braccata
pluriracemosa *Part 3*, **44, Fig. 279.**
poculifera *Part 1*, **81, Fig. 98**
pollex *Part 4*, **70, Fig. 332.**
polyantha *Part 2*, **167, Fig. 182.**
polybotrya *Part 4*, **175, Fig. 401.**
polycarpica *Part 1*, **56, Fig. 77.**
polyclada = pusilla
porpax *Part 4*, **177, Fig. 402.**
porphyrea = calothece
portillae *Part 2*, **168, Fig. 183.**
potpouri *Part 4*, **177, Fig. 403.**
prava *Part 2*, **168, Fig. 184.**
preclara *Part 1*, **21, Fig. 27.**
pristis *Part 4*, **70, Fig. 333.**
procera *Part 1*, **57, Fig. 79.**
prolata *Part 2*, **169, Fig. 185.**
prolificosa *Part 3*, **45, Fig. 280.**
propagans *Part 2*, **128, Fig. 119.**
prorepens = scansor
protracta *Part 1*, **58, Fig. 80.**
protuberans *Part 3*, **45.**; *Part 4*, **201, Fig. 281 revised**.
pterostylis = pugiunculi
pubipetala *Part 1*, **58, Fig. 81.**
pudens *Part 4*, **178, Fig. 404.**
pugiunculi *Part 4*, **71, Fig. 334.**
pulchella = dialissa
purpurascens *Part 3*, **52, Fig. 297.** as thermatica; *Part 4*, **178.**
purpurea *Part 1*, **22, Fig. 29.** as repanda; *Part 2*, **121, Fig. 105.** as alpina; *Part 4*. **72.**
purpurella *Part 1*, **59, Fig. 82.**
purpusii = purpurascens
pusilla *Part 4*, **180, Fig. 405., 405a., 405b., 405c.**
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ramosii *Part 4*, **182, Fig. 406.**
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reflexa = hylophila
regina *Part 1*, **21, Fig. 28.**
remifolia *Part 2*, **170, Fig. 187.**
reniformis *Part 2*, **118, Fig. 103.**
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repens *Part 4*, **183, Fig. 407.**
rhizomatosa = trichorrachis
rhynchanthera = lanceolata
rimulata *Part 2*, **170, Fig. 188.**
riozunagensis *Part 3*, **46, Fig. 283.**
robusta = purpurea
robustior = purpurea
rodriguesii = aprica
rosamariae *Part 1*, **22, Fig. 30.**
rostrata *Part 4*, **183, Fig. 408.**
rotunda *Part 2*, **171, Fig. 189.**
rusbyi = purpurea
saccata *Part 1*, **7, Fig, 2.**
sanchezii *Part 1*, **23, Fig. 31.**
sanctae-rosae *Part 1*, **59, Fig. 83.**
santiagoi *Part 1*, **24, Fig. 32.**
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saurocephala *Part 2*, **120, Fig. 104.**
scaberula *Part 3*, **47, Fig. 285.**
scalena *Part 1*, **60, Fig. 84.**
scandens *Schltr.* = pusilla
scansor *Part 4*, **184, Fig. 410.**
scaphoglossa *Part 2*, **129, Fig. 120.**
schistochila *Part 2*, **171, Fig. 190.**
schomburgkii *Part 3*, **26, Fig. 242.** as cryptopetala; *Part 4*, **185, Fig. 242a., 242b.**
scitula *Part 3*, **48, Fig. 286.**
scopulosa *Part 4*, **74, Fig. 335.**
secunda *Part 2*, **172, Fig. 191.**
seleniglossa = hymenantha
septella *Part 2*, **172, Fig. 192.**
septicola *Part 3*, **48, Fig. 287.**
serpens = brevilabris
serra *Part 4*, **186, Fig. 411.**
serrulifera *Part 1*, **60, Fig. 85.**
sesquipedalis = lanceolata
similis = yanganensis
singularis *Part 4*, **75, Fig. 336.**
situlifera *Part 1*, **24, Fig. 33.**
sodiroi = discolor
soricina *Part 3*, **49, Fig. 289.**
sororcula *Part 3*, **50, Fig. 290.**
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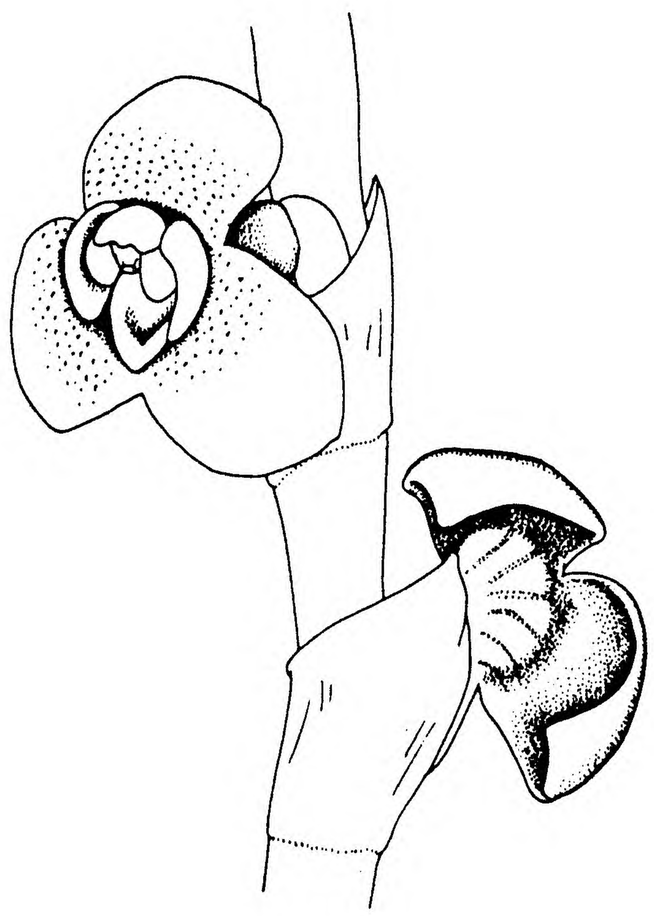
strictissima *Part 3*, **51, Fig. 292.**
striolata *Part 4*, **188, Fig. 413.**
strobilacea *Part 3*, **13, Fig. 221.**

Stelis suaveolens = depauperata
subtilis *Part 2*, **197, Fig. 204.**
sumacoënsis *Part 1,* **25, Fig. 34.**
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tobarii *Part 4*, **76, Fig. 338.**
tonsoria = langlassei
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translucens *Part 3*, **54, Fig. 298.**
trianae = scansor
tricardium *Part 4*, **192, Fig. 415.**
trichoglottis *Part 3*, **54, Fig. 299.**
trichorrachis *Part 4*, **192, Fig. 416.**
tricula *Part 3*, **55, Fig. 300.**
tricuspis = spathulata
tridactyloides *Part 1,* **61, Fig. 86.**
tridactylon *Part 4*, **193, Fig. 417.**
tridentata *Part 1,* **46, Fig. 56.**; *Part 4*, **194, Fig. 56a., 56b.**
trinitatis = muscifera
trinitensis = muscifera
triplex *Part 3*, **55, Fig. 301.**
triplicata *Part 4*, **194, Fig. 418., 418a.**
triseta = bicornis
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tristyla *Part 4*, **195, Fig. 419., 419a.**
tropex *Part 3*, **56, Fig. 302.**
truncata *Part 4*, **77, Fig. 329.**
tumida *Part 2*, **174, Fig. 195.**
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undecimi *Part 4*, **196, Fig. 420.**
undulata *Part 1,* **61, Fig. 87.**
uniflora *Part 3*, **57, Fig. 304.**
uxoria *Part 1,* **62, Fig. 88.**
vagans = scansor
valladolidensis *Part 4*, **77, Fig. 340.**
velivolva *Part 1,* **25, Fig. 35.**
velutina *Part 4*, **78, Fig. 341.**
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viamontis *Part 2*, **174, Fig. 196.**
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villosilabia *Part 4*, **197, Fig. 421.**
viridibrunea *Part 4*, **197., Fig. 78a.**
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yanganensis *Part 1,* **64, Fig. 91.**; *Part 3*, **49, Fig. 288.** as similis.
yauaperyensis = argentata
zamorae *Part 3*, **58, Fig. 306.**
zarumae *Part 1,* **64, Fig. 92.**
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